

Issued Every Month

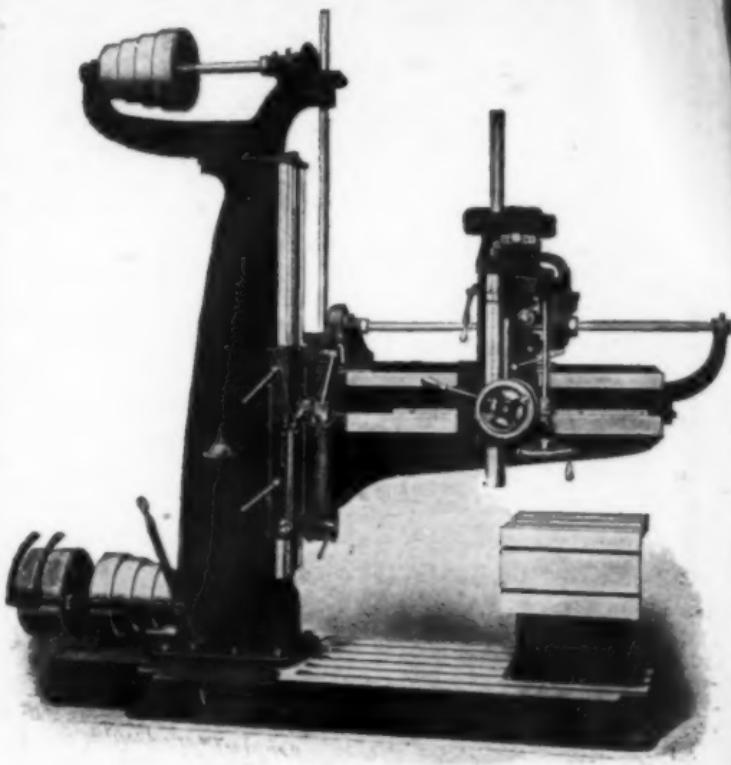
for Free Distribution to Users
of Machine Tools

HITCHCOCK'S
**MACHINE
TOOL LIST**

A Reference Book for Buyers
of Iron Working Machinery

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago

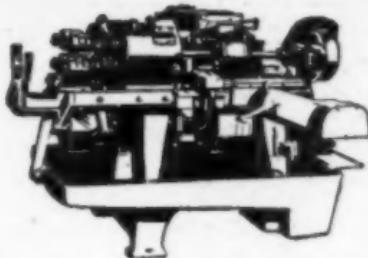
Fosdick 4-ft. Radial Drill



Why pay a big price for a 4-ft. Radial Drill with lots of feeds and speeds when you have no use for same. Try a Fosdick, simple in construction, yet a massive and powerful tool. Investigate and see how easily this tool is handled.

Write for full description and prices; they will interest you.

The Fosdick Machine Tool Co.
Cincinnati, Ohio



The Acme Automatic Multiple Spindle Screw Machine

Here is a Way to Save

In making duplicate parts there can be no greater economy than saving the cost of auxiliary machines by completing your work in one handling. That's what the Acme Automatic does for your screw machine work.

The multiple spindle method of the Acme, enables you to perform so many operations at once (more than eight if necessary) that few pieces require re-handling.

Over 200 examples of the How and Why of the Method are shown in the "Acme Way" booklet. Send for it. That it applies as well to your work, we will show you in estimates based on your samples. Let us have them now.

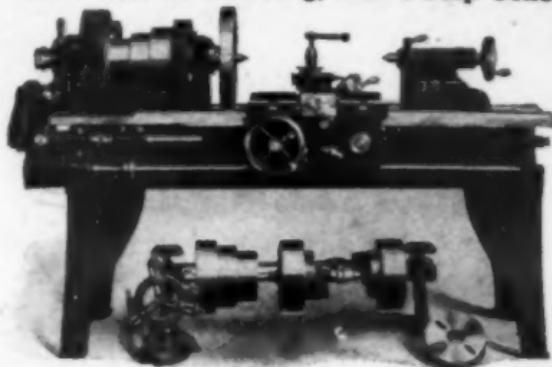
The National-Acme Mfg. Co.

CLEVELAND, SIXTH CITY

New York Boston Chicago
Detroit Montreal Atlanta

A Modern Service Lathe

15 in. with 17 in. Swing, 3 or 4 Step Cone



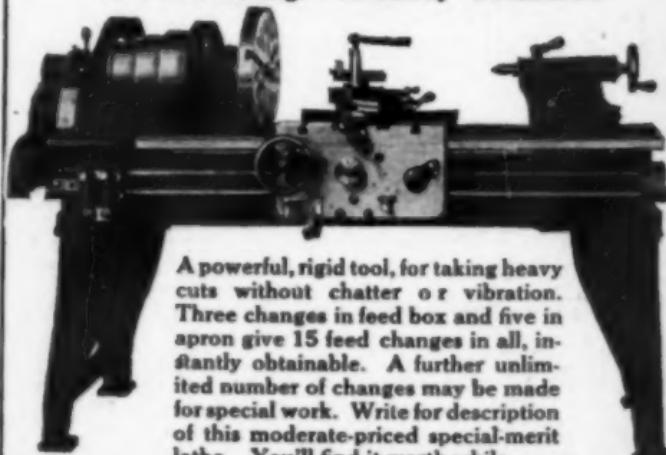
This up-to-date tool is the culmination of our 27 years' experience in lathe building. It has the power, accuracy and conveniences of the strictly modern lathe, with special features that add to its desirability in practical use.

We want to tell you all about it. Your address?

L. ROBBINS MACHINE CO., Worcester, Mass.

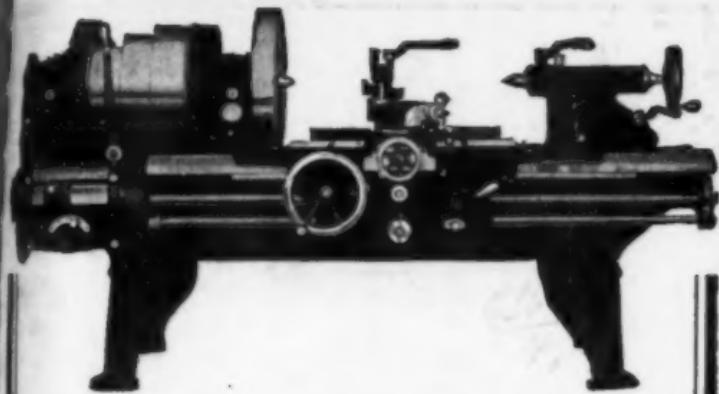
16" Patent All Gear Feed Lathe

15 Feed Changes Instantly Obtainable



A powerful, rigid tool, for taking heavy cuts without chatter or vibration. Three changes in feed box and five in apron give 15 feed changes in all, instantly obtainable. A further unlimited number of changes may be made for special work. Write for description of this moderate-priced special-merit lathe. You'll find it worth while.

THE VON WYCK MACHINE TOOL CO., Cincinnati, O.



**Increased Unit Production
Means Dividends**

**LeBlond Lathes Increase
Unit Production per Hour.**

Therefore Install

LeBlond Lathes
And
Increase Your Dividends.

*Send us sketches of parts you
want produced more rapidly*

The R. K. LeBlond M. T. Co.
Cincinnati, Ohio

Low-Priced Lathes

built with high-price care, and with the New Haven Guaranty behind them. How can we do it? Read below and see.



21-inch
Standard Lathe

THE PICTURE shows our high-quality low-priced Standard Engine Lathe, which is made in sizes 18-in., 21-in., 24-in. and 28-in. swing.

IT'S THIS WAY: We make a line of Improved Engine Lathes, from 24-in. to 65-in. swing, that set a mark in modern machine shop practice for others to aim at. They are of a quality that cannot be produced without expert designers, highly skilled workmen and the latest tools. Now, precisely the same organization builds our lower-priced line, from 18-in. to 28-in. swing. What's the answer?

Tell us your needs—single or double back gear—belt or motor drive—anything from 18 to 65-in.—and see what we have to offer.

New Haven Manufacturing Co., - New Haven, Conn.

15" Heavy, Accurate, Modern



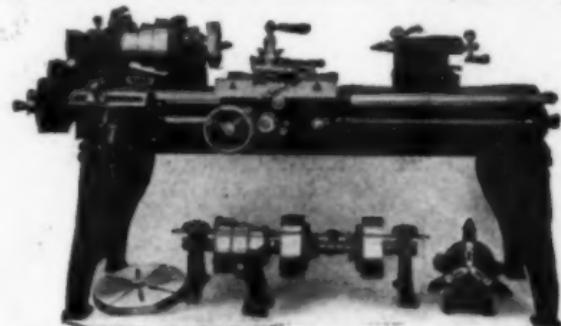
For the
Tool Room
And Factory

A LATHE that combines accuracy and capacity in such degree that it is equally efficient in tool room or factory. Made to meet the most severe requirements where accuracy is required, it also has the strength and rigidity to take heavy cuts without chatter. A modern tool that makes good anywhere.

The price, too, is attractive for the quality. Write for it.

Rockford Tool Co. Harrison Ave. & 11th St.
Rockford, Ill.

One Handle and Knob Control 32 Changes of Feed and Threads without Removing a Gear



14" Back Geared Lathe, 15 $\frac{1}{4}$ " Swing

Indexed to cut threads 3 to 32 to the inch; feeds, 20 to 200. Guaranteed accurate to .001 of an inch. Friction feeds, phosphor bronze bearings, high grade throughout.

Write for details

The Carroll & Jamieson Machine Tool Co., Batavia, O.

No Matter What You Manufacture You will find a Temco Model B Drill indispensable



Because it is particularly adapted to your line as well as general repair work about your plant.

Because it is extremely light and having the most convenient shape, can be carried anywhere.

Because it operates on both alternating and direct current, can be reversed when the drill sticks, and is a practical tapper.

Because it will drill in steel with any size drill from 0 to $\frac{1}{8}$ " at the proper speed, as the speed is automatically regulated.

Because the break over feature permits tightening the drill in the chuck by hand, saving time when changing drills.

Its range of service is unlimited. Write for catalog.

The Temco Electric Motor Co., 55 Sugar Street,
LEIPSIC, OHIO

Don't Overlook the Merits of This Lathe



16-inch Lathe

Single or Double Back Geared Head Stock—Shifter lever in front for shifting back gears.

Long carriage bearing on bed, with carriage gibbed in front and back.

Compactly designed Quick Change Box, with all steel gears, and only two operating handles to make all changes.

Circular fully describes and illustrates this lathe. Send for it today.

The Conover-Overkamp Machine & Tool Co.
840 Germantown St., Dayton, Ohio, U. S. A.

“FOX”

For More Than
50 Years

The Standard
Brass Finisher's Lathe

It Is Easy To Prove
This Statement

Catalogue of
13 Styles and Sizes
For The Asking

THE AMERICAN TOOL & MACHINE CO.
Incorporated 1864
BOSTON **AND** **NEW YORK**



DON'T RUN AWAY from your set screw troubles.
Stay, and rectify them with the

Allen Safety Set Screw

It is a new screw—a safe screw—and a guaranteed one.
Insist that your dealer gives you the ALLEN.

We Make a Large Line of Safety Lathe Dog Screws

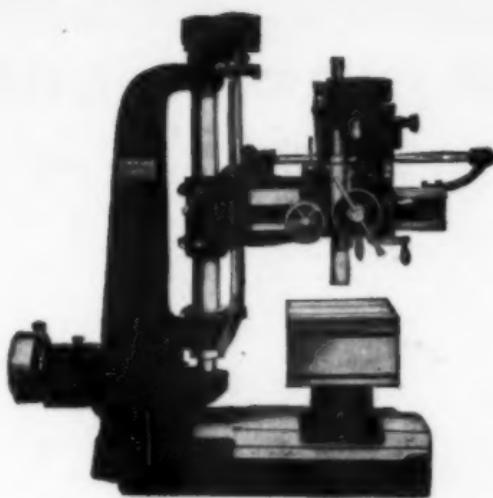
Ask for booklet No. 13

The Allen Mfg. Co., Inc., Hartford, Conn.

Canadian factory, 29 St. Davids Lane Montreal, Canada.



Our 48-Page Catalog may start you into Modern Methods. Ask for it!
THE KELLY REAMER CO., - Cleveland, Ohio
London Sidney New York Detroit Boston



The "Morris" Plain Radial Drill

is a simple tool of unusually rigid construction. This form of construction insures accuracy obtainable at all times, and the convenience of operation and rapidity in production that means saving in cost.

Our long experience in building these radials enables us to guarantee you a well built machine that will stand up to the work in a thoroughly satisfactory manner.

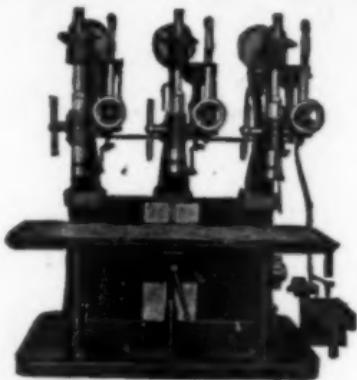
The price of these machines is very reasonable. In fact, we believe we can show you where we can save you money on this class of equipment. Let us figure on your requirements.

Write for descriptive matter. It is worth having for reference.

The John B. Morris Machine Tool Co.
Cincinnati, Ohio

Makers also of **SUPERIOR MORRIS** Engine Lathes

Rockford Gang's



They not only drill, but they bore, ream, tap and face without removing work from jig.

Write for descriptive matter

Rockford Drilling Machine Company
Rockford, Ill., U. S. A.



\$35.00

For This
Bench Drill

with chuck and
countershaft.

Six Speeds
Belt Tighteners

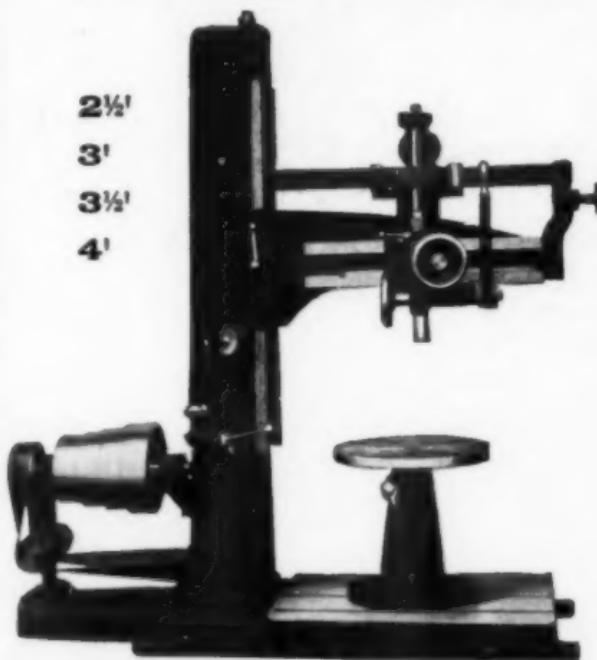
A new line of Bench
Drills, foot lever and
column.

Send for circular

Reed Drill Company
43 Hammond Street,
Worcester, Mass.

Cast Iron 2-in. Thick

The Gang Speedy-Belted-Sensitive Radial drives
a $\frac{1}{2}$ -in. high-speed drill through in 5 seconds

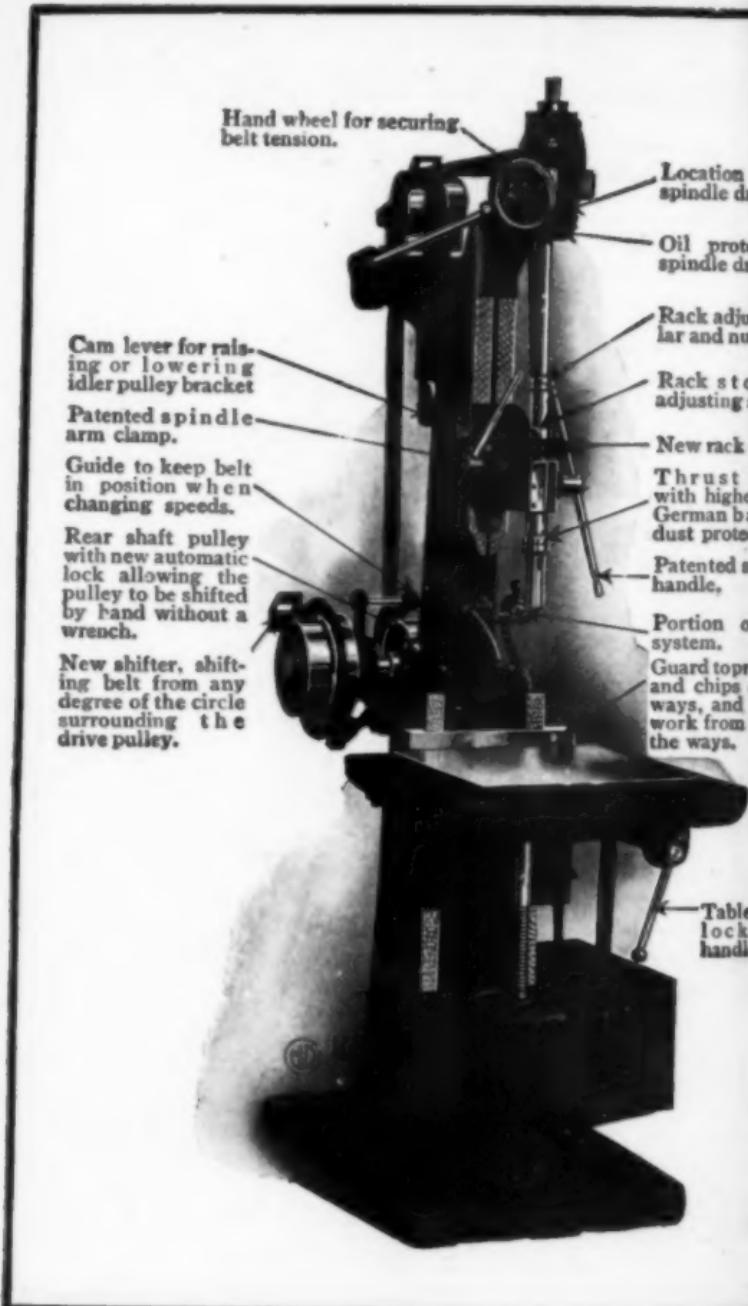


IF YOU are drilling $\frac{1}{4}$ to 1-in. holes in large or difficult work, an investigation will show you how this powerful tool can lower your drilling costs. Its efficiency has been a revelation to many keen manufacturers.

It is equally effective for drilling or tapping—taps up to $\frac{3}{8}$ -in. Lower driving belt is 3-in. wide, head belt $2\frac{1}{2}$ -in. wide. The Gang is ball-bearing and practically noiseless.

*The strongest drilling-link you can put in your chain
of shop economies. Do not delay its insertion.*

The William E. Gang Co.
Cincinnati, Ohio



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Establish

In ev
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Thrust bear
with highest gr
German ball
dust protector.

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8, 12 or

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money o

The

Perfected Drilling Machine

The New Henry & Wright Class B

A Ball-Bearing, High Speed Machine That Is
Establishing Fresh Records for Efficiency and Economy

In every detail this machine has been made the subject of careful study and experiment, and the new features are all of them real improvements, which add substantially to its speed, convenience and its productive capacity, making it such an important advance, even upon the earlier Henry & Wright type, which was itself a record-breaker, that we have put it in a new class, which for convenience we call Class B.

Attention is directed to a few of the improvements in connection with the view of the machine opposite, but many of them cannot be shown in an engraving. The new spindle drive is one of these. It enables us to use a shorter and therefore stronger and stiffer spindle, the advantage of which is obvious. The new spindle arm, better means of changing speeds, and a new arrangement of the ball-bearings are other important improvements. The whole machine is heavier, more carefully proportioned and balanced, easier on the operator, owing to modifications in the bases and pillars which better suit it to the average man. It is in every way a faster and more economical drilling machine than the old one; we believe it to be the fastest and most economical in the world.

We are making the Class B machine with from 1 to 8 spindles, tables of various sizes, and with an overhang of either 8, 12 or 15 inches, as well as in special assemblages having 16 inches between centers. The same machine is also made with a cabinet base and easily detachable table, and known as Class C.

A booklet describing these new machines in detail will cost you nothing, and if you ask for it, we shall also be glad to send free our Chart of Drilling Feeds and Speeds, which shows at a glance just the speed and feed required for any drill in any metal to get the best results. Both will help you save money on your sensitive drilling.

The Henry & Wright Mfg. Co.

760 Windsor St., Hartford, Conn.

Silver's 20" Drills

Eight Styles

LEVER FEED

LEVER and WHEEL FEED

POWER FEED and Automatic Stop

POWER FEED with Back Gears and Automatic Stop

Round or Square Base

Send for catalog



Fig.
858

The Silver Mfg. Co., 385 Broadway
SALEM, OHIO



Burke Quality
Excels on
Fine Points

To get the

Burke

quality, be sure
that the name
and address
(Conneaut, O.)
are cast on the
frame of the
machine.

For Sale Everywhere

CAN YOU BEAT IT
FOR \$100⁰⁰

Drills $\frac{3}{4}$ " holes - Taps $\frac{1}{2}$ " holes



Not a delicate
tool but a heavy
rigid manufacturing
drilling machine
equipped with
belt tightener -
Automatic
tapping device

ASK
US
?



H.G. Barr 21 Hermon Street Worcester Mass.

14-Inch Sensitive Drill

For Particular People

An accurate, high-grade drill press that is unusually efficient and convenient, with forged and ground high carbon steel spindle and ball bearing thrust. The upper table, which swings around column, has bracket for angular drilling, also stop pin or locking bolt. The lower table is adjustable vertically and interchanges with combination centering device—three centers in one. Vertical adjustment of lower cone provides for taking up slackness of belt.



Write for special circular

ROCKFORD LATHE & DRILL CO., -

Rockford, Ill.

Faster and More Convenient

A 14-in. Drill That Saves Time

Half of the work that some workmen do on a 20-inch drill, and often a larger proportion, can be done so much more conveniently and economically on the Mechanics' 14-inch. A beautifully designed tool, convenient and durable, made to sell at a very moderate price.

The Mechanics' Catalog shows Friction Drills, Standard Uprights and Gangs. Write for it.

Mechanics' Machine Co.
Rockford, Ill.



No Intelligent Machinist



orders unsatisfactory tools more than once. And it's "Repeat Orders" we want so we make all "Detroit" Tools as well as the best materials, human skill, 26 years' experience and exacting inspection can produce.

"DETROIT" TWIST DRILLS

prove by *actual service* that they reduce shop costs. They give the highest drilling efficiency regardless of materials or conditions. They cut fast and deep and insure accurate, precise work. Each one leaves the factory with a positive guarantee to perform the hardest work with the least re-grinding and to run true from tip to shank.

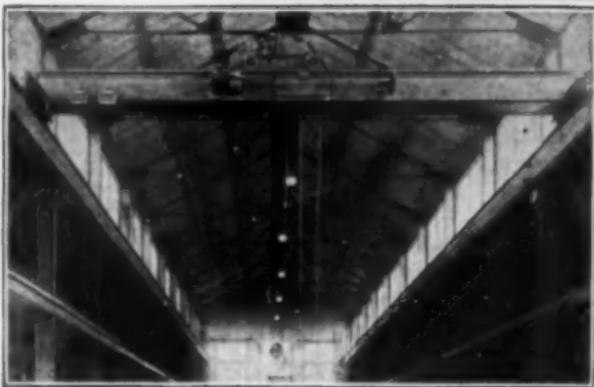
"Detroit" Drills are made in all sizes and styles—grooved and taper shank, carbon and high speed steel.

Test "Detroit" Drills on a tough job. The result will interest you. So will Catalog "J" and our special trial offer.



Detroit Twist Drill Co.
510-522 Fort St., Detroit, Mich.

1926 Wabash Ave., Chicago 30 Church St., New York
633 Market St., Philadelphia



**Floor Operated
Electric Traveling Cranes**

do not require an operator in constant attendance and are frequently as well or better adapted for handling material than the more expensive cab operated.

We make all types of overhead cranes and hoists.

The Euclid Crane & Hoist Company
Euclid, Ohio



Myers Bench Drill

Ball Bearing Thrust
Swivel Table
Two Speeds
Countershaft attached
1/2" Chuck fitted to spindle
Steel pinion
Drills to center of 10 1/2"
Weight, crated, 80 lbs.

FULLY GUARANTEED

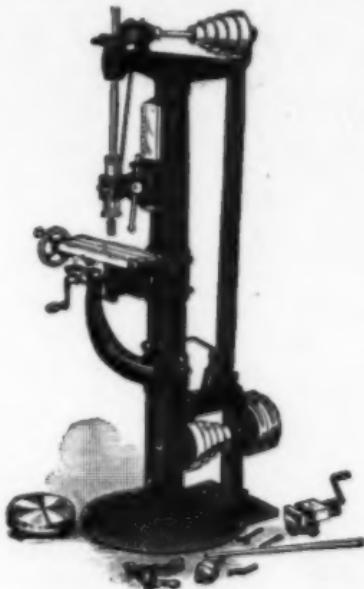
Priced lower than any
other drill of its size

*See them at your own
dealer's store, or address*

Myers Machine Tool Co., **Columbia, Pa.**
Philadelphia, Pa., Office & Salesroom, 249 N. Third St.

We Do Not Claim

That the No. 1 Knight cannot be improved upon; but we know there is none quite so handy or efficient



WE HAVE BEEN improving the Knight Milling and Drilling Machines in a systematic way, until now one of them equals two or three ordinary ones. In tool rooms and on hard machining they save 20 to 50 per cent of high priced labor. Especially good on dies, jigs, moulds and metal patterns. They enable you to mill, bore and drill at any angle with one setting of the work. Also made in two larger sizes.

For convenience, low costs and quicker work, use a Knight. Write

W. B. Knight Machinery Co.
St. Louis, Mo.

A Contented Man

Does More Work—Pays Better



Give him the same convenient receptacle for his clothes and personal belongings that you like for your own, and you increase his self-respect, his satisfaction with his job and therefore his earning power for you.

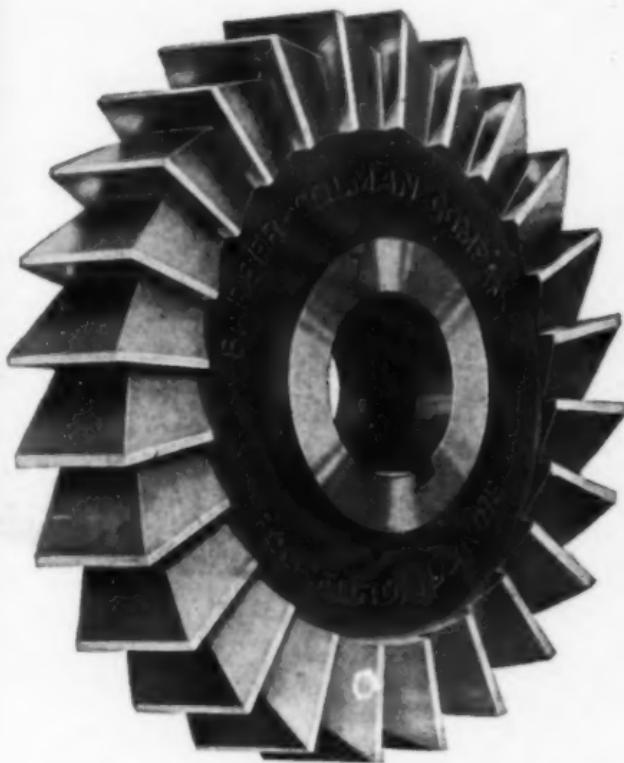
The Terrell steel lockers are not only safe and sanitary, they are a real economy. They save room, reduce insurance cost, and being indestructible suffer no damage from moving. They do cost a little more than wooden cup-boards to begin with, but there is no after expense, and as an investment they have permanent value.

We make them in a variety of styles and sizes, and in single, double and quadruple units, so that they can be adapted perfectly to any space and any requirement.

Information free as air—ask for it

Terrell's Equipment Company

Hall & Division Sts., Grand Rapids, Mich.



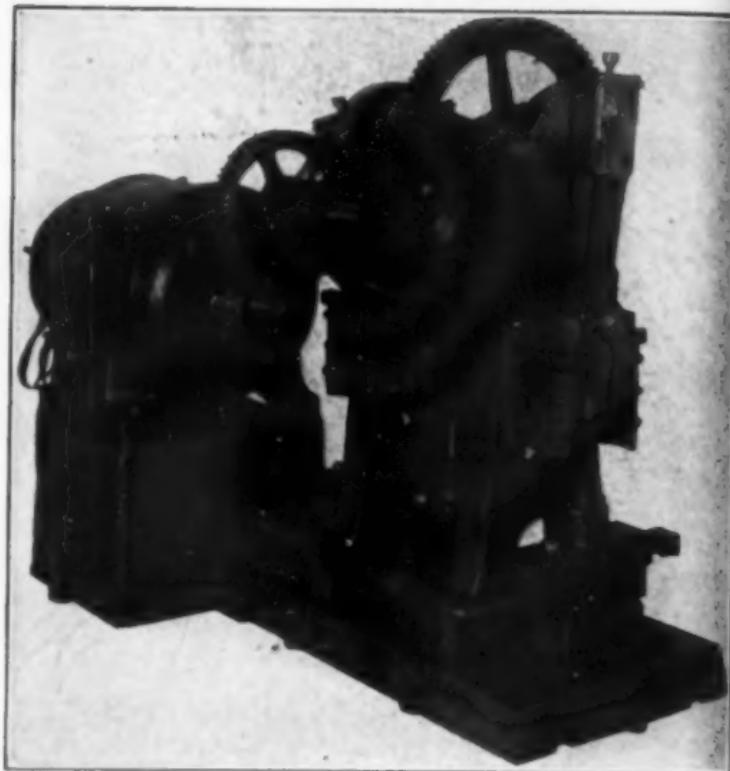
Good Milling Cutters

are both satisfactory and economical. If you have a particularly hard place for one, it will give you an opportunity to satisfy yourself just how good the Barber-Colman cutters are. It is not without reason that they are preferred by many of the most exacting users.

*Like to look over our catalogue?
A simple request makes it yours.*

Barber-Colman Company
Rockford, Ill.

"For Your Pressing Needs"



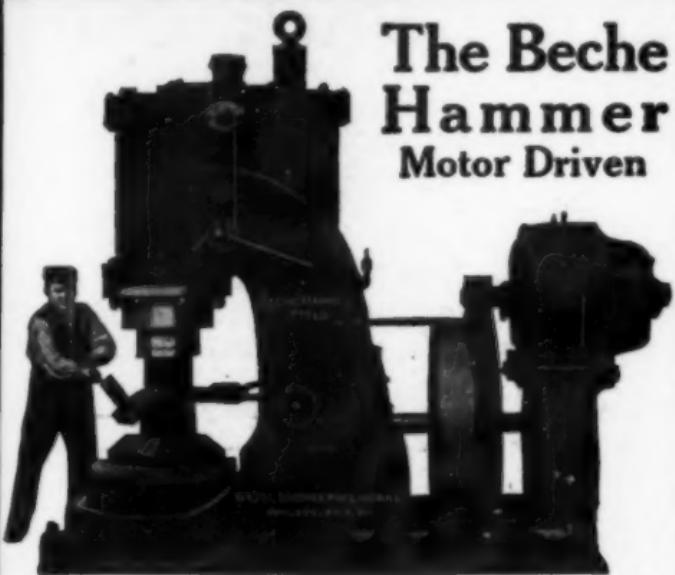
Centralized Power Is the Cheapest

This high duty, hydraulic, triplex, direct connected, motor driven pump delivers a pressure of from 750 to 10,000 pounds per square inch. Pump stocks are made of steel. All gears are machine cut from open hearth steel castings. Strength and durability characterize the pump throughout.

Our large line of improved **Hydraulic Presses and Pumps** have stood the test for years; they are not over-rated and can be relied upon. Every precaution is taken to make every part of our machines fulfill its mission, and the very best material is selected for the various parts.

Let us figure on your pumps and presses

THE HYDRAULIC PRESS MFG. CO., 72 Lincoln Avenue
Mount Gilead, Ohio
Eastern Office:—Room 1105Z, 39-41 Cortlandt St., New York City
Chicago Office:—164 N. Clinton St.



The Beche Hammer Motor Driven

**The Heaviest, Most Powerful, Efficient
and Economical Hammer of Its
Size on the Market.**

*Hammer and Compressor Combined, No Piston
Rods, Springs, Straps or Cushions.*

Simple—Durable—Reliable

Powerful, non-bounding, squeezing blow. Positive, flexible control. Long stroke. Variable blows at will. No adjustments. Dies at any angle. Belt drive, no countershaft. Motor drive, geared direct.

Sizes and Normal Capacities of Beche Hammers

66 lb.	165 lb.	250 lb.	350 lb.	500 lb.	770 lb.
2" dia.	4" dia.	5" dia.	7" dia.	8" dia.	9" dia.

Write for Catalogue and Prices

Nazel Engineering & Machine Works

Sole Builders for United States and Canada

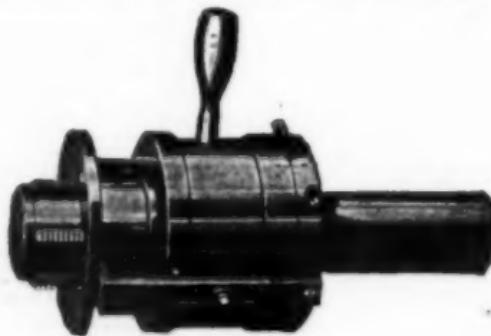
5th and Luzerne Sts. - - - Philadelphia, Pa.

Don't Back Out!

The backing out of solid taps wastes time, injures the cutting edges of the tap, and often strips or destroys the thread.

There is no better method of tapping threads, either straight or standard pipe sizes, than the use of the

Geometric Adjustable Collapsing Taps



Fitted for operation on your Drill Press, Screw Machine, or Turret Lathe.

Adapted for tapping any line of Screw Threads of 1 in. or larger diameter.

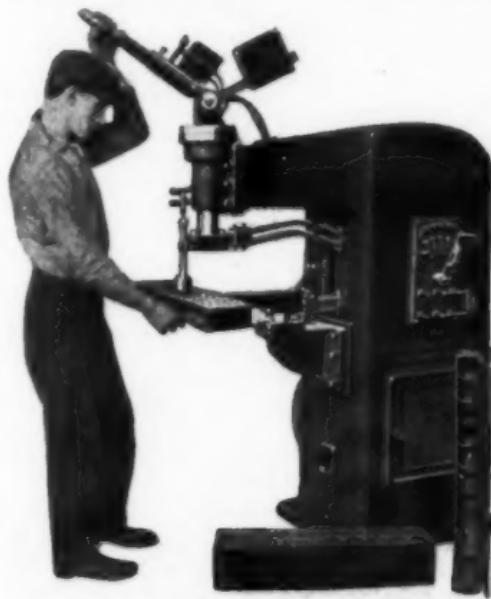
Our Collapsing Tap Catalogue will interest you

The Geometric Tool Company
New Haven, Conn.

Riveting Costs Reduced From 60% to 250%

This
boy
is
welding
Sheet
Steel
Bottle
Cases

He does
more
work
than
NINE
riveters
could
do



50% to 80% Cheaper Than Riveting

He puts the piece in the welder and pulls down on the lever. **That's all.** The current is turned **on**—the weld is made—the current is turned **off**; it's all done automatically and quicker than you can think about it. And it's a stronger, better and smoother job than riveting. We have a

Free Trial Offer

a make-good-or-take-back proposition without obligating you to accept the machine until you have tested it out on your work. Get one of our bulletins—it tells all about welders.

No Lease

No License

No Royalty

Toledo Electric Welder Co.

Station A.

Cincinnati, Ohio

The Close Fitting Horton

A Convenient and Dependable Face Plate Jaw



sliding jaw in all sizes. In material and workmanship they exemplify the Horton principle that every part must be as good as it is possible to make it. Try a set, and let them demonstrate their merits on your own work.

In Lathe Chucks, Drill Chucks and Face Plate Jaws you will find the Horton Line Unparalleled

The pointed ends, which are a feature of the Horton Jaws, are a practical improvement. They come close together in the center, giving a secure hold for small pieces, and they are easily and firmly fastened in any position. The ribbed feature makes them stronger and lighter, owing to the more effective distribution of metal, and gives them a broader bearing surface. The whole jaw is reversible in all except the 4 and 6-inch sizes, and the

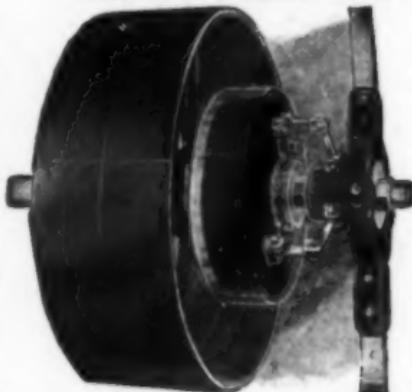


4 and 6-in. Size.

E. Horton & Son Company
Windsor Locks, Conn.

The Edgemont Plate Clutch

Made to Stand Use and Abuse



Dust and Dirt
don't bother it any
—wearing parts are
fully protected.

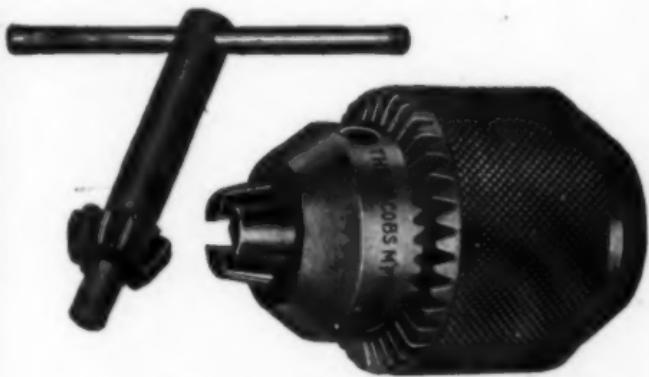
No Oil or other
attention of friction
mechanism required.

Catalog D. shows
the Edgemont line.
We make regular
and special clutches
for all transmission
purposes. Put your
clutch problem up
to experts.

The Edgemont Machine Co.
National Ave. & Neibert St. Dayton, O.

What do you think about it?

What makes the tang of a taper shank drill break off? What makes a straight shank drill break? Isn't it that the shank or tang continues to revolve after the drill ceases to rotate? Isn't any mechanism that drives a drill positively, a drill breaker? Isn't a drill breaking Chuck an expensive proposition? Isn't a drill driving mechanism **ideal**, that may be so intelligently adjusted as to adequately drive a drill, and at the same time allow a drill to cease rotating instead of breaking?



The incorporation of this **ideal condition** in the Jacobs Improved Drill Chuck, explains **why more Jacobs Improved Drill Chucks were purchased during January 1913, than in any other month during our phenomenally successful career.**

Our 34-page catalogue "H" sent upon request.

The Jacobs Manufacturing Co.
Hartford, Conn.

Morrow Drill Chuck



The Best 3-Jaw Drill Chuck

has just been added to the celebrated Horton line of Lathe Chucks, Planer Chucks, Face Plates and Boring Mill Jaws, rounding out our chuck service so that we are now in position to furnish chucks of tested superiority for every service.

E. Horton & Son Company Wine

Chuck Now Made By Horton

We secured the Morrow Ball Bearing Drill Chuck, because from our knowledge of Chucks, derived from long experience in this business, we know this to be the best hand operated drill chuck that the ingenuity of man has yet produced. It has been tested under all kinds of service conditions in many hundred shops, and it has proved so convenient, so quick in tightening and releasing, and so sure in its hold upon the drill shank, that no question as to its exceptional merit remains.

The combination of the best chucks for all machines in one organization will be of distinct advantage to chuck users the world over. It will insure the maintenance of the highest standards in manufacture, as well as the selection of the best materials for every part, and a broad and liberal policy in marketing. The aim of this company is not only to manufacture the best chucks in the world, chucks that will do the most and last the longest, but to so handle them that the Horton service shall be known as the last word in efficiency and satisfaction wherever chucks are used.

If you have ever used a Morrow Drill Chuck we shall not need to recommend it to you, for you already know its worth; if you have not, we urge you to try one on our recommendation.

We know that when you see it in action, you will agree with us that its equal for economy and effectiveness does not exist. It is complete in itself, opening and closing with a simple twist of the wrist; you have no key or spanner to lose or break.

*When you need a chuck for any purpose,
write Horton*

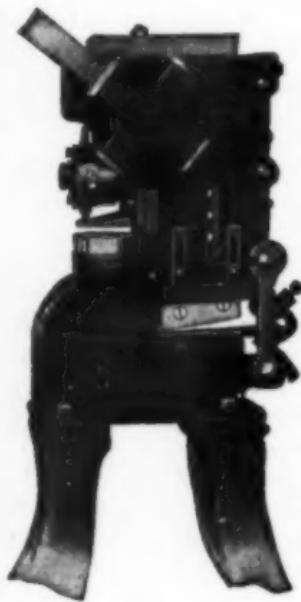
f Lathes
ll Jaws
in pos
service

any Windsor Locks, Conn., U.S.A.

The Union Punch, Shear and Rod Cutting Machine

Made in three sizes.

All hand operated



The only machine made that combines the *three principal operations* in the working of metals—punching holes, shearing sheets or flat bars, and the cutting off of round or square rods.

It is a useful machine for every factory that has a tool room or repair shop.

Cut shows the No. 2 size, mounted on legs, designed for the general manufacturer.

Cuts wire or rods $\frac{5}{16}$ -in. square and $\frac{1}{2}$ -in. or $\frac{3}{8}$ -in. round.
Shears $\frac{7}{16}$ -in. x 2-inch flat bar or No. 8 gauge plate.
Punches $\frac{1}{2}$ -in. hole in plate $\frac{1}{2}$ -in. thick.

Complete Catalogue on request

Union Manufacturing Co.
Shear Department

26 Cortlandt St.,
New York

New Britain, Conn.

You can
change the speed
to suit the work with a



Reliance Adjustable Speed Motor

Whether it is a heavy roughing cut on the toughest steel or a finishing cut on the softest brass, whether the diameter of the piece be large or small, you can get the right speed to produce the quickest and best results. Running speeds within the range of the motor are unlimited so that any change in the work can be met quickly and easily by a proper change in the cutting speed.

Turning the handwheel shifts the motor armature, producing the speed changes—no electric controller is needed. This method is so simple and convenient that the operator is encouraged to make speed changes as often as necessary. Speed adjustment becomes almost automatic—far easier than shifting belts or changing gears—and far more efficient because the speed is not above or below, but just right.



Write for Folder 10L. It explains in detail the advantages of Reliance Motors and shows interesting applications to machine tools.

**Reliance Electric &
Engineering Co.**

1050 Ivanhoe Road
Cleveland, Ohio



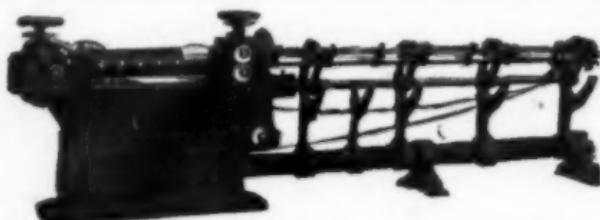
**"Our Grant Riveter
Is the Most Valuable Machine
We Have in Our Plant."**
So Says One of Our Customers
WHY?

A boy or girl at \$1.00 a day is all that is required to operate the machine with perfect success. The machine will do better work and much more rapidly than can be done by any other machine on the market.

We invite you to send us samples of your work, which we shall rivet and return to you, giving estimate of output and any other information you may desire.

*Send for catalog which shows
several different sizes and styles
of machines for different requirements*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.



Automatic Wire Straightener and Cutter
Brass, Copper, Gold, Iron, Steel or Rough Wire

All handled with equal facility, directly from the coil. Perfect work at high speed, not for one hour or one day, but day after day for years. One of the mills has several which are operated 22 hours a day, and have been running this way for several years constantly.

Half a Century's Experience Back of Our Guarantee.

THE F. B. SHUSTER CO., New Haven Conn.

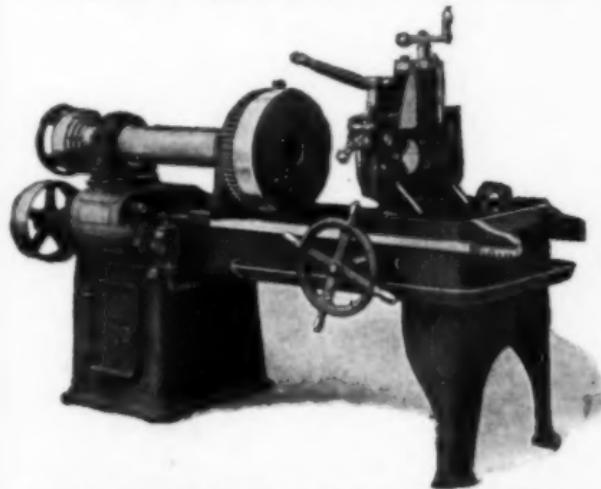
Established 1866

Formerly John Adt & Son

**Square, hexagon, flat and strip stock Straighteners and Cutters,
Wire Formers, Helix Coilers, Etc.**

You Are Invited

to put your Pipe Threading and Cutting problems up to us. Expert advice free for the asking. No charge except for the machines, which we recommend only when they are properly adapted to your work.



Peerless, P. D. Q. C. and Duplex Modern Power Pipe Machinery

For $\frac{1}{4}$ -in. to 18-in. Pipe

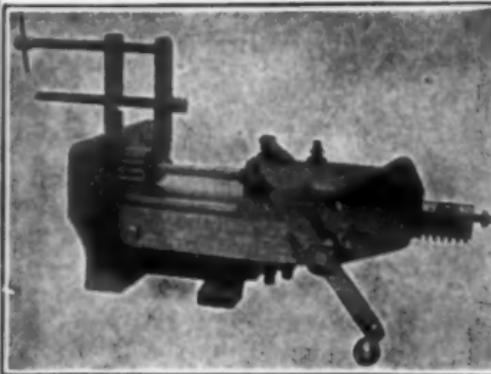
These are made in many regular and special styles and sizes, to meet varied and exacting requirements. They have been adapted to such a wide range of practical service that one of them is more than likely to be just what you are looking for. If not, we won't let you suffer if there is any way we can help you out—but we are helpless unless we know what your requirements are.

Suppose you write us fully—now.

Bignall & Keeler Mfg. Co.
Edwardsville, Ill.

The Champion

A Hand Operated Key Seating Machine



Will make key-seats as rapidly and accurately as the expensive stationary machines, and can be used on light or heavy work, in any part of the shop. Many jobs that cannot be done on a stationary machine can be readily done on the Champion. A great time and expense saver.

For price and complete description address

F. L. Schmidt Company
150 Eleventh Avenue. New York, N. Y.

KEYSEATER

For Your



DRILL PRESS

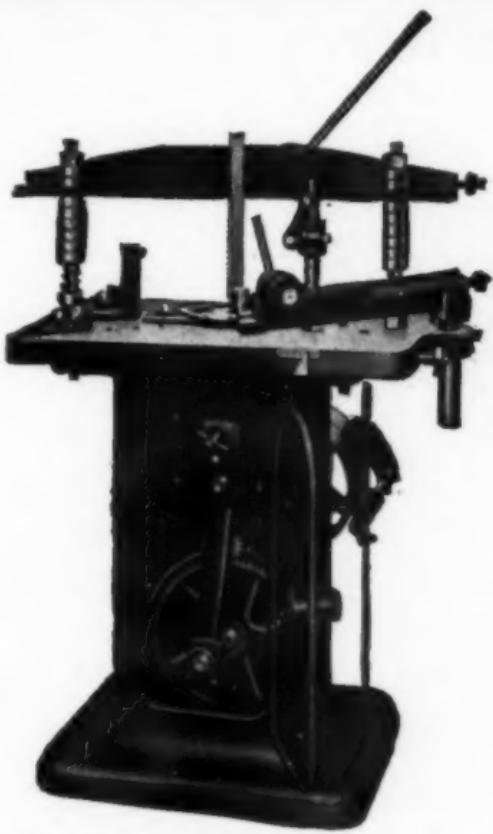
We make them in 20 sizes

Ask for booklet



Bushing for different diameters

National Machine Tool Co.
128 Opera Place Cincinnati, Ohio



Davis Keyseaters **Stand for Rapid Production**

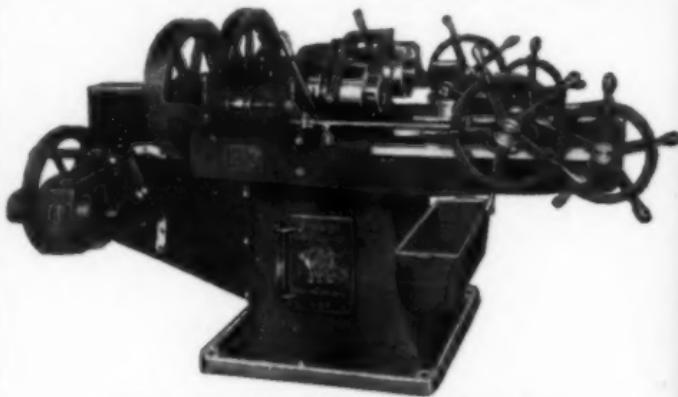
They meet every requirement as a manufacturing machine, and can be used economically on large or small lots. Also adapted for Slotting, Oil-grooving and other work.

Let us mail you a copy of our new Treatise on Keyseating. It's free.

The W. P. Davis Machine Company
Builders of Lathes, Turret and Cutting-Off Machines
Rochester, N. Y.

“Standard” Bolt Cutter

Made in all sizes. Also *Belt* and *Motor Driven*



Motor Driven Double Machine

A Machine Tool That Is More Accurate Than A Lathe

We are ready to show samples of stock that were threaded on a **Standard Bolt Machine**, to prove it.

Micrometer adjustment for cutting over or under sizes and this *adjustment made while machine is running*. Graduated index makes mistakes impossible. Automatic stop; also dies opened and closed automatically.

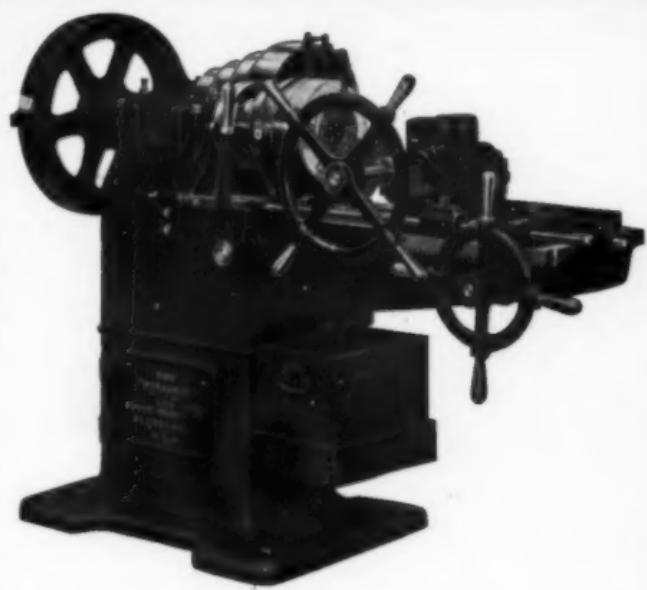
Its exceptional capacity, economy, ease of operation, accuracy and dependability under all conditions make it the foremost machine of its type. Oftenest specified for government and railroad shops, where quality and output count.

May We Send Fuller Description?

Universal Machine Company

Enterprise St., Bowling Green, Ohio

Sold by Niles-Bement-Pond Co., New York, N. Y., Philadelphia, Pa., St. Louis, Mo., Detroit, Mich., London, Boston, Mass., Pittsburgh, Pa., Chicago, Ill. and Birmingham, Ala. Eccles & Smith, San Francisco, Cal. Kudel-Belnap Machinery Co., Montreal, Canada W. Steinhaus & Co., Paris, France.

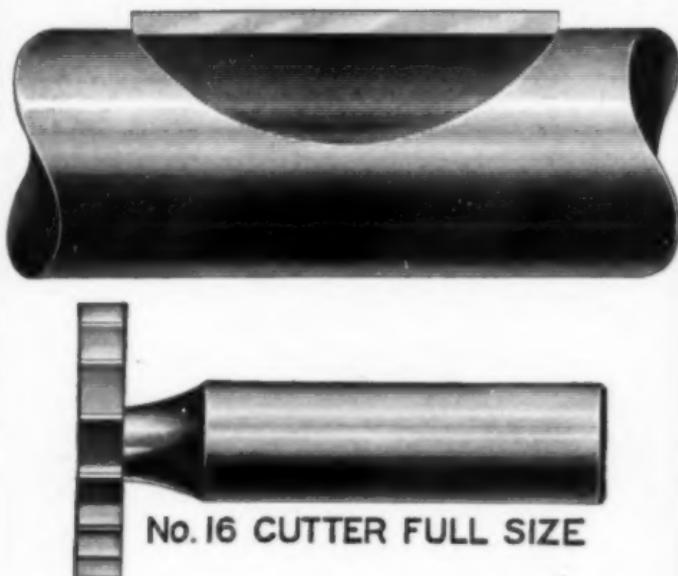


Reliance Bolt Cutters

Built in sizes $\frac{3}{4}$ inch to 6 inches, Single, Double and Triple, of the most up-to-date design. There is, also, a good reason why the "Reliance" is such a satisfactory machine for accuracy of threads cut, large production and low cost of maintenance, even in the hands of inexperienced labor. A lot of this reason is in the Opening Die Head, and we would like to tell you all about it. Interesting information for the asking.

The Foote-Burt Co., Makers
Cleveland, Ohio

“Whitney” Keys and Cutters For “The Woodruff System of Keying”



No. 16 CUTTER FULL SIZE

“Whitney” Keys are made in 114 different sizes and in three grades as follows:

Regular Carbon Steel Keys

Regular Carbon Steel Keys Case Hardened

Nickel Steel Keys Heat Treated

“Whitney” Cutters are furnished in both Carbon Steel and High Speed Steel, so no matter what your requirements, you will find in our line exactly the Key and Cutter to meet your particular conditions.

Catalog No. 10 Gives Full Particulars

**The Whitney Manufacturing Co.,
Hartford, Conn.**

Manufacturers of Hand Millers, High Grade Driving Chains, Water Tool Grinders, “The Woodruff System of Keying,” Presto Chucks and Friction Tapping Devices.



Electric Air Cooled Drills

Are Best by Test

Are You Still Paying Two
or three prices for a job
just because you have al-
ways done so



The fact that the U. S.
Government tests prove they
are superior in every respect
should be convincing evidence
to all users of this type of tool.

Aside From This

there's the evidence of thousands of users all over the United States. Would they use them if they were not the best? Hardly.

Want a Catalogue? A Postal will bring it.

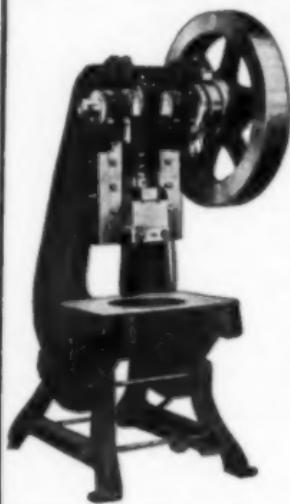
We use aluminum for Casing on all Drills to cut down weight
Power from any Lamp Socket

SENT ON TRIAL ANYWHERE

*Made for alternating or direct current
Just attach it to your nearest lamp socket*

The United States Electrical Tool Co.
Cincinnati, Ohio

NEW YORK, 50 Church St.
BOSTON, 12 Pearl St. CHICAGO, 8 E. Michigan St.
PHILADELPHIA, Heed Bldg., No. 1211 Filbert St.



Power Efficiency

reaches the 100% mark in

HIGH DUTY
ROCKFORD
PUNCH PRESSES

Greatest development in Punch Press construction. Friction cut **one-half**. All power transmitted to Slide. Rigid construction enables every bit to be realized.

Catalog No. 5 gives details.

Write today.

The Rockford Iron Works
Rockford, Ill.



For Railroad

And all other Industrial
Lifting Purposes

The essentials of an ideal lifting jack are strength, safety, convenience, and minimum requirement of lifting effort; and it must be weather-proof, dirt-proof and fool-proof. These elements are all combined in

Buda Ball Bearing "Postep"

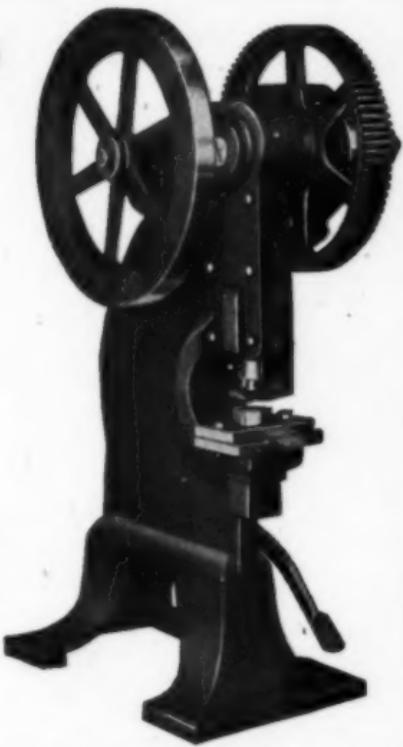
in the highest degree. It can't be lifted too far; it won't trip or run down; it has great durability, and it requires the least muscular exertion.

*Our modern factory makes them
cheap in price only. Booklet?*

The Buda Company, Chicago

Whitcomb
No. 5
Power
Punch

Four Sizes
From $\frac{1}{4}$ " in $\frac{1}{4}$ "
To $\frac{5}{8}$ " in $\frac{5}{8}$ "



One of the new Whitcomb Line of
Punches and Shears

Immediate Delivery on

No. 1 Hand Shears
No. 2 " "
No. 3 " "
No. 4 " "
No. 5 " "

In One Week

Hand and Power Shears

In Two Weeks

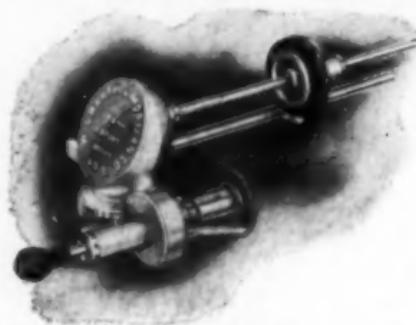
Power Shears

Modern Lathes and Planers

We invite your inquiry

Whitcomb-Blaisdell Machine Tool Co.
Worcester, Mass., U. S. A.

Grinding Lathe Centers



Is an every-day job in almost every shop. Can every lathe operator down to the apprentice do an absolutely perfect job with your present means? He can with the Wilmarth & Morman Center

Grinder. "A Brief Treatise on Lathe Center Grinding" sent free on request.

Grinding Drills

Can your boy grind your drills in less time and do a better job than the "old man"? Yes, if you have one of these new style WPL New Yankee Drill Grinders. They save four-fifths of the breakage of drills and reduce wear about one-half also, to say nothing of added drilling efficiency. We also make surface grinders, cutter and reamer grinders, etc.



Complete catalog free

Wilmarth & Morman Co.
575 Canal St., Grand Rapids, Mich.



High Grade Emery Grinders Built to Stand Many Years of Hardest Service

THE No. 55 FLOOR GRINDER with cabinet base, in material and workmanship, is a real machine tool—of the kind far-sighted manufacturers appreciate. The spindle is of crucible steel, lathe turned and threaded; collars are shrunk on and turned slightly concave, and nuts are carefully faced so they will not spring the shaft; it has long bearings, babbitted, self-oiling with double rings, and dust capped; filling oil reservoir from the side keeps emery dust out of the bearings. This style of grinder is made in three sizes.

I also make a line of smaller bench or column grinders, all up-to-date in design and construction. Let me send you literature.

*My experience enables me to produce at rock-bottom cost.
That's why my prices are unusually interesting. Write*

E. O. PARTRIDGE
2047-9 Lake Street, - - - CHICAGO

Besly Patternmakers' Disc Grinder

(PATENTED)

The most useful and necessary tool in the modern pattern shop

With this machine an apprentice boy can do much work which heretofore had to be done by the most skilled workman.

In addition to doing work quicker than by other methods, the grinder produces straighter, flatter surfaces, better glue joints, more accurate angles and dimensions as well as better finish. Ground surfaces make the best glue joints known for wood patterns.

**Made Single or Double End
Belt or Motor Driven**

24, 30 or 40-in. Diameter Disc Wheels

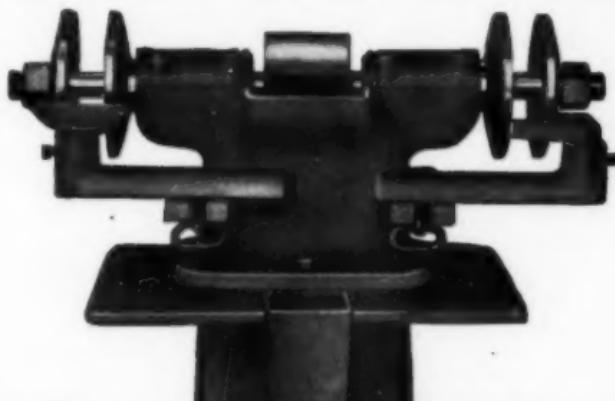
Ask for our "Pattern Making Pamphlet"

Chas. H. Besly & Co.

CHICAGO, U. S. A.



ROYERSFORD



EMERY **GRINDER**

No. 4



A Silent Quick Adjusting Grinder

Will give you more satisfaction in the long run, and besides it is a vast improvement as a time saver over the old style method of having to use a wrench every time the supports need adjustment.

Every machine is perfectly protected from grit and dust, and one oiling will last several months.

The best grade of material is used throughout, and the spindle is accurately ground from 30 point carbon steel.

Write us for full information and prices.

Royersford Foundry & Machine Co.
60 N. Fifth Street, Philadelphia.

A-Wet-Tool-Grinder

That Will Give Perfect Satisfaction



For 30x3 in. Wheels

Heavily constructed with self-oiling bearings throughout, and can be run constantly, doing away with the delay of starting and stopping.

Equipped with our Vertical Centrifugal Pump which has no packing to wear out and leak, and which furnishes a constant supply of water.

Built in 30 and 20-inch sizes.

Write for catalogue No. 14

J. G. Blount Company
Everett, Mass.



A Full-Efficiency Grinder All The Time

Irrespective of the Size of Grinding Wheel

As the emery wheel wears down, reducing its diameter, the **Ransom Patent Speed Controller** automatically regulates the speed of the motor for a wheel of that particular diameter.

In this way the same periphery speed is maintained on wheels of any size—just right for the best results, and within the limits of safety all the time.

Free Bulletin No. 9 describes all sizes

Ransom Manufacturing Company
Oshkosh, Wis.

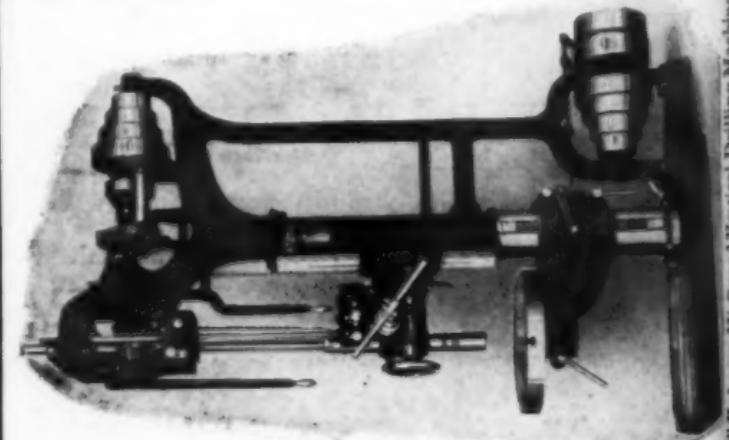
A Tool Room Drilling Machine



We have produced this machine to meet the requirements of the tool room as well as that class of manufacturers who want the best. This is the first strictly High Grade Vertical Drilling Machine ever built and differs from all others as follows—

Fitted with DAMASCUS BRONZE BEARINGS made in the form of BUSHINGS, which can be removed and replaced at will. The mere act of inserting new BUSHING will insure original alignments. The machine illustrated has 32 BRONZE BUSHED BEARINGS.

The only VERTICAL DRILLING MACHINE built
that is ~~needed~~ entirely with STEEL GEARS. Not a cast iron
~~part~~ ~~exists~~ ~~except~~ ~~the~~ ~~base~~ ~~which~~ ~~costs~~ ~~nothing~~ ~~extra~~ ~~to~~ ~~you~~?



"Kokomo Hi-Speed Vertical Drilling Machine,
Kokomo, Indiana, Rock, Gorean, Friction
Rock Reactions.

WILSON — 11

20" Kokomo Hi-Speed Vertical Drilling Machine, precision built, designed for you.
DOLK RETURN LEVER.

What an advantage from an operative standpoint! You can change from open belt, direct speed, to back geared speed, instantly, and also start or stop your feed at will, without shifting a dental clutch or disengaging the worm from worm gear.

The POSITIVE GEARED FEED giving eight changes has FRICTION AUTOMATIC STOP which can be adjusted to slip at different working strains.

The TAPPING DEVICE is a separate machine, mounted in form of a JACK SHAFT, with STEEL FRICTION GEARS and with a DRIVING KEY 14 in. in length. This is not a make-shift, but the most efficient tapping device ever furnished with a VERTICAL DRILLING MACHINE.

The TABLE ARM is extremely heavy to prevent spring, has large circular bearing for table, and the TABLE is very heavy with all "T" slots MILLED from the solid, an entirely new practice. The CROWN GEAR is accurately cut from STEEL and is mounted in a TAPERED DAMASCUS BRONZE BUSHED BEARING.

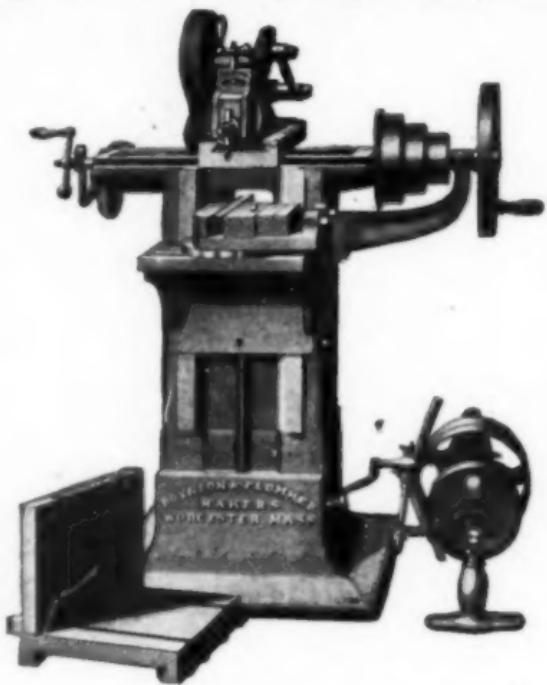
The above mentioned features are EXCLUSIVE with the KOKOMO HI-SPEED and should at least arouse your curiosity as to the balance of our story, which is given complete in Bulletin No. 250.

If you are a QUALITY MAN, you will want this literature for your files, even though you are not now in the market for a drilling machine. Write for it today.

We manufacture the HIGHEST GRADE and most complete line of VERTICAL DRILLING MACHINES in the World.

SUPERIOR MACHINE TOOL COMPANY
Cable Address: Kekodrill KOKOMO, IND., U.S.A. Liebert, A.B.C., Western Union Codes

Improved Shaping Machines



6x9, 8x12 and 10x15-in. Shapers

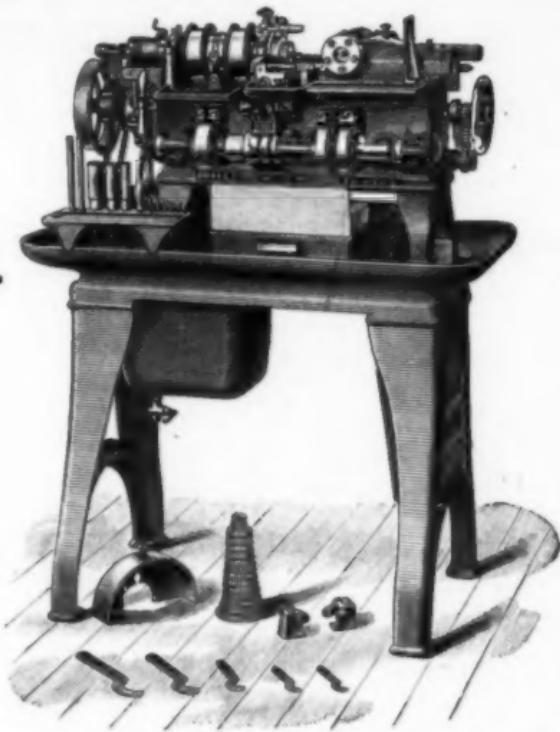
These modern tools are particularly desirable for tool makers, die sinkers, railroad, repair and other shops where there is much short work to be done by filing or planing. They are great labor savers, and for many purposes are preferable to the much more expensive large planer.

SPECIAL

The 6x9-inch shaper, length of traverse 14 inches, with countershaft and swivel chuck, including plain chuck 14 inches long, **\$160.**

Write for Shaper Catalog, also separate Catalog of Post Drills, Bolt Cutters, Bending Machinery and Nut Tappers.

Boynton & Plummer, Inc.,
Worcester, Mass.



If you manufacture watch parts, dental findings or work of a similar character requiring extreme accuracy, or brass parts that demand high spindle speeds and quick movements, you will find **B. & S. Automatic Screw Machines** particularly adapted to your work.

On receipt of blue print, we will gladly furnish estimates.

Brown & Sharpe Mfg. Co.
Providence, R. I., U. S. A.

The Lea-Simplex



It has the cutting edge and the power behind it to cut the time and cost of cutting cold metal. It has greater capacity than any arbor driven machine of equal blade capacity.

You will find it fully described in our catalogue

Write for it now

Lea Equipment Company
4900 Stenton Ave., Philadelphia, Pa.

With This Automatic Saw Running At High Speed

you can cut your bars into
Duplicate Pieces
all alike in lengths desired
without operator's attention.

**It Feeds the
Bar and Saves**
labor, time, blades.

It's a modern
money maker.

*Write us for complete de-
scription and price.*

Armstrong-Blum Mfg. Co.
341 N. Francisco Avenue
Chicago, U. S. A.

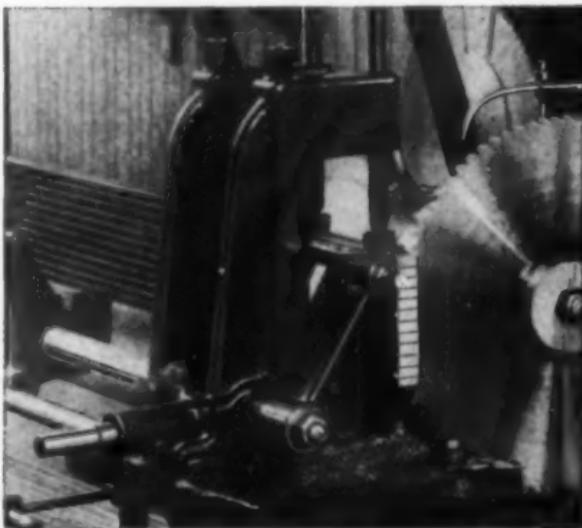


"Marvel" No. 5.

12 Cuts At Once 3240 Pieces in 9 Hours

**1/8 in. x 1 in. Steel
(This size)**

All accurate within .002"



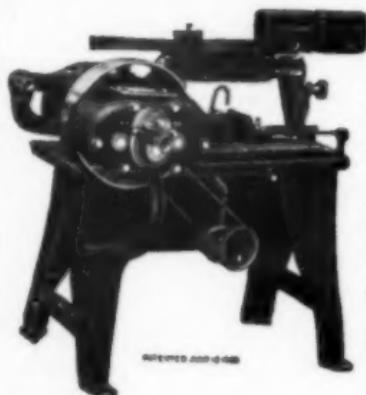
With a No. 4 B, Six-Inch Cochrane-Bly Cold Saw

This is not an exceptional performance for the Cochrane-Bly saw. Similarly rapid, accurate and economical cutting off is done every day in hundreds of shops where these are used. The five sizes meet every requirement of manufacturers, and enable them to secure maximum economy of cost. Merely get the right size machine for what you have to do, and your cutting off problem is solved. Tell us just what your work is; our experience will help you in adjusting your equipment to do it at a substantial saving in money and time.

**Cochrane-Bly Company
Rochester, N. Y., U. S. A.**

Don't forget our Automatic Sharpener for Cold Saws. It means better, faster, cheaper sawing

Three Machines—One Cost



The Racine High Speed Metal Cutting Machine with 3 speed Transmission is the greatest money saver ever installed in a machine shop.

Cuts any metal at the right, the most efficient and economical speed. Does your work quicker, better and cheaper than any other. Try it out in your shop for 30 days at our expense.

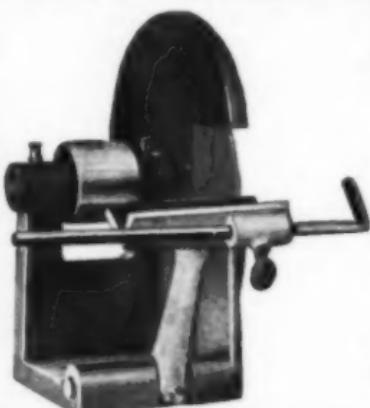
4 Sizes: 6x6-8x8-12x12-12x15".

Write for details now.

Racine Tool & Machine Company
Racine, Wis., U. S. A.

A Good Abrasive Metal Saw For \$16.50

The cheapest and best tool for cutting high-speed steel up to $\frac{5}{8}$ -in. square. Also angles, channels and tees, brass or iron, up to 1-in. diameter.



The Peter Saw

is compact and simple, but thoroughly well made and designed for long, hard service. Will save its cost every few months. A necessity for users of high-speed steel, because it cuts it in one quarter the time required for notching and breaking, and leaves the ends square and smooth. Uses an 8x1-16-inch wheel, easily renewable at nominal cost.

Fifteen Days' Trial

Write for one—test it yourself

Peter Bros. Mfg. Co.
Algonquin, Ill.

8-in.

A

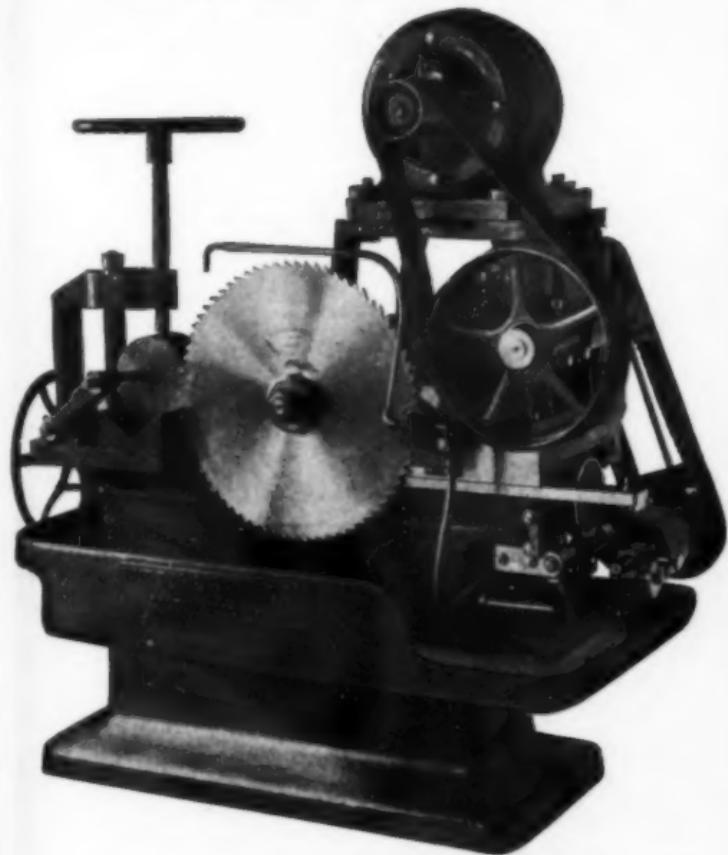
powerful
 $\frac{1}{2}$ -in. a
patent re
produce

Write

326 A

Motor Driven Metal Sawing Machines

Made in Sizes 4, 6, 7, and 8-in.



8-in. Machine, Capacity 8½-in. Rounds, 8-in. Squares

A solidly built modern tool of especially effective design, with powerful 43-to-1 gear drive and quick change gear feeds from $\frac{1}{2}$ -in. to $\frac{1}{4}$ -in. a minute. The saw is 22-in. diam. by $\frac{7}{16}$ -in. thick, with B. & S. patent relieved teeth. For all kinds of steel cutting they are the largest producers of the solid blade milling saw type, and are not saw breakers.

Write for description of Sawing Machines and Automatic Saw Sharpeners

Nutter & Barnes Co.

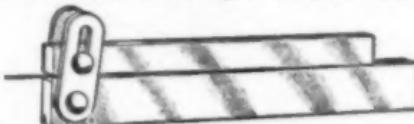
326 A. Street. ••• ••• ••• ••• Boston, Mass.

A NEW TOOL HOLDER The Handiest Yet

Only One Holder for All Sizes and Shapes of Tools



Shows Tool Holder with cutting-off tool, a narrow flat blade.



Reversed, holding small domestic pin, under No. 60 drill size.

For any kind of work only one Tool Holder is required. You make your own tools or we will furnish them at small cost. A simple, practical holder that we guarantee satisfactory. It is well worth investigation, and we ask you to write for descriptive folder that tells the whole story.

Morgan Manufacturing Co., Redwood St.,
Newport, R.I.

The Collapsible Tap

Makes good everywhere, because its construction absolutely insures continued duplication of threaded work. The form of the chasers prevents their clogging up with chips. Chasers can be ground on the end, thus easily kept in proper condition for bottoming.

Our rapidly operating Aero Chucks

will increase your production from thirty to fifty per cent.

We are also builders of **Special Cost Reducing Tools** for manufacturing brass and iron goods.

*For further information
ask your dealer or
write us direct*

Manufacturers Equipment Co.
171 N. Jefferson St., Chicago, Ill.



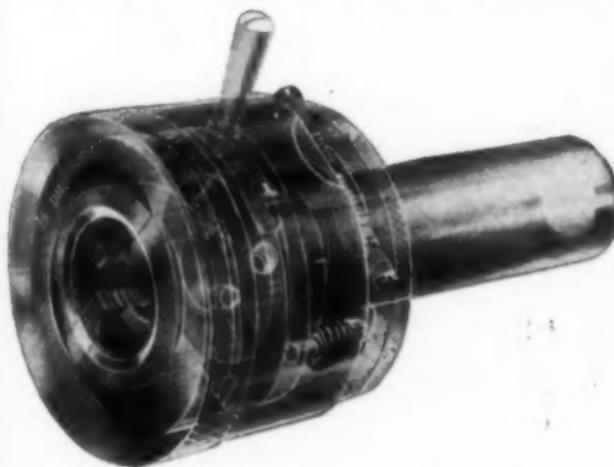
Are you using the most improved Type of Automatic Threading Die? If not, get in line and use

New Model Type A

Ideal Opening Die

Simple construction—Few Parts—and impossible to get tapered thread

Let us know your wants. Write for information regarding Die.



This Die does not depend on any Springs for opening. As soon as Clutch is disengaged the cutting strain opens Die.

Notice how Chaser is backed up. Thrust directly in back of cutting strain; which makes it impossible to bell up, which is the cause of tapered threads.

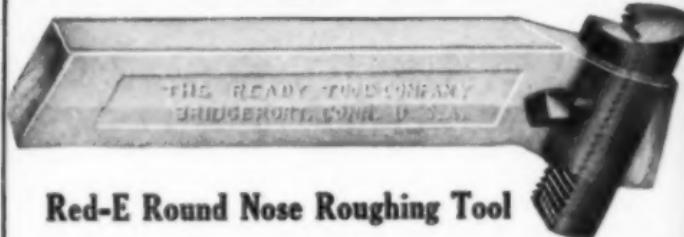
This is the most improved type of Opening Die on the market at the present time

Manufactured By

The Ideal Tool & Mfg. Co.

Office and Factory, BEAVER FALLS, PA.

For A Larger Production



Red-E Round Nose Roughing Tool

A Customer Writes:—“A roughing job which took 45 minutes with a forged tool, took only 23 minutes with your Round Nose Roughing Tool.” The shape of cutting edge, the cutting angles, and our treatment of the special high speed steel are factors in this result. Made in four sizes. *Our catalog explains more fully.*

The Ready Tool Company
Bridgeport, Conn.



Are You Tired of Paying Big Bills for High Speed Steel?

ARMSTRONG TOOL HOLDERS

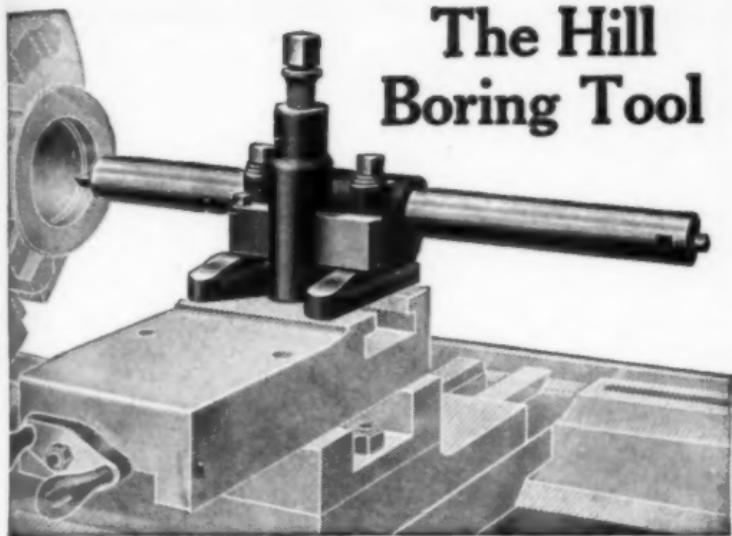
Make 1 lb. of Tool Steel go as far as 10 lbs. in Forged Lathe and Planer Tools.

Write for catalog—It tells other advantages.

Armstrong Bros. Tool Co., 308 N. Francisco Ave.
CHICAGO.



The Hill Boring Tool



For Heavier and Accurate Cuts

Even under heavy stress, there is no danger of the cutter twisting around and increasing cut. The holder is a heavy malleable casting that clamps firmly to the cross slide, with steel screws to bind the bar. The bar itself is one solid piece of cold rolled steel. A combination that insures the strength and rigidity for heavier cuts with accuracy.

THE EBERHARDT TURNING TOOL is another one of our specialties that stands for strength, accuracy, economy and convenience. The head, where strength is required, is larger than the shank, and when the high speed cutter is locked in place it is as solid as a forged tool.

Write for catalog of small tools of quality

Union Caliper Company
Orange, Mass.



Greatest Efficiency at Least Expense

The Morse "Rarefied" does the Best Work for the Longest Time

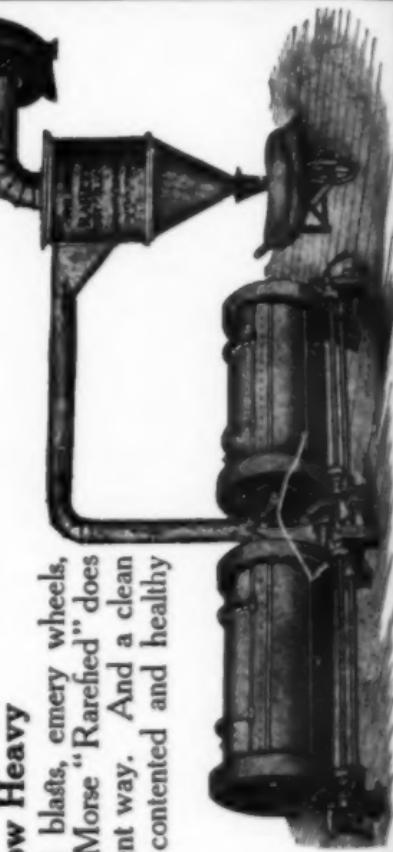
A partial vacuum draws in the air, and the dust is collected and discharged automatically before the air reaches the fan. There is no cleaning out by hand. As friction is practically eliminated, the collector is assured of long life, and repairs are reduced to next to nothing.

No Matter How Heavy

the dust—whether from sand blasts, emery wheels, polishers or tumbling mills, the Morse "Rarefied" does the work in a thorough, efficient way. And a clean work-place pays liberally in contented and healthy employees.

Our free booklet is convincing. Write to

The Knickerbocker Co.,
Jackson, Mich.



Procrastination

probably is responsible for more antediluvian, back-breaking, time-wasting scenes of useless drudgery, of which the picture below gives a mild suggestion, than all other causes combined.



Call your Stenographer—now—and order

"The Handiest Tool in the Shop"

Portable Floor Crane and Hoist

which will do the lifting and luggering of two to a dozen men.

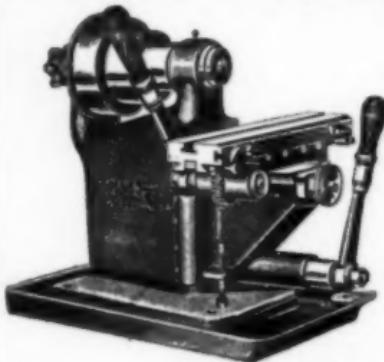
Or,
write for
Booklet
"E-8"
showing
several
styles
and
sizes

Of Course
you
intend to
some
time;
but
why
procras-
tinate?



The Canton Foundry & Machine Co.
Canton, Ohio

A Profit Producing Proposition

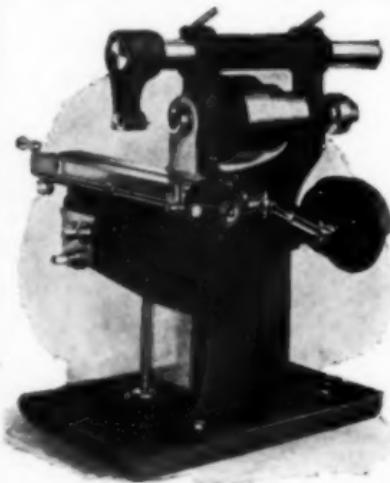


Is our New Model Bench Miller. Carefully designed, thoroughly well made, carefully tested, and a machine which will deliver the goods.

Send for descriptive circular

The Carter & Hakes Co.
West Winsted, Conn., U. S. A.

AGENTS—Marshall & Huschart Mchry. Co., Chicago, St. Louis, Indianapolis; Mottch & Merryweather Mchry. Co., Cleveland, Detroit, Cincinnati, Pittsburg.



Burke's No. 4 Bench Miller A Seasoned Tool

Extremely accurate and maintains permanent alignment. The greatest care is taken to thoroughly season all castings, which are carried six to eight months before the final machining. A tool that is not only made accurate, but that will stay so. It is unequalled for precision work.

Longitudinal feed, $8\frac{3}{4}$ ";
traverse feed, $4\frac{1}{2}$ "; vertical
motion to knee, $8\frac{3}{4}$ "; table
surface, $3\frac{1}{2} \times 16$ ".

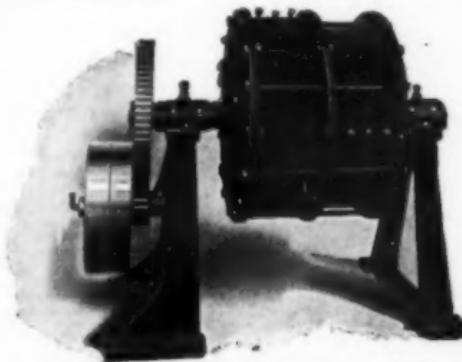
The Burke Machine Tool Co.
Conneaut, Ohio

• • • • • • •

Compared with Other Methods
The Abbott Burnishing Process
Has Two Distinct Advantages

The steel balls burnish and harden the surface,
without removing any of the material.

They burnish hundreds, and even thousands, of
pieces at one time.



• • • • • • •
The Abbott Burnishing Barrel

Is narrow and of large diameter. In operation it is half full of steel balls, weighing several hundred pounds, which work into a high pile and, in sliding down, bring weight and friction upon the work. Each ball is an individual burnishing tool, and thousands are working at once. This is Steel Ball Burnishing, of which we are the originators.

• We have been sending Abbott Barrels and Abbott Balls to responsible concerns on approval for over three years. In most cases we receive a check before the approval time expires.

Write for booklet and send samples for burnishing

The Abbott Ball Company
Elmwood District, Hartford, Conn.

• • • • • • •

You Can Make Your Own
Soft Metal Vise Jaws and Hammers



Our Combined Moulds and Ladles

are about as handy as handy can be. The cut illustrates our device for moulding vise jaws. We make similar ones, in different sizes, for moulding hammers. Just melt the metal in the ladle, tip it back, and it runs into the mould. A boy can do it easily. The metal may be used over and over.

Inexpensive and economical. Write for particulars.

CHAS. H. FIELD, Providence, R. I., U. S. A.

A Self Paying Oil Saver



No. 400—Capacity: 2 Bushels

Three Sizes

The Curtis
returns its cost in a few months time after installation. It whirls the oil out of chips and shavings in a steady, economical way, that means a nice saving for you yearly.

Wasting costly oil is an expensive habit, and the Curtis reverses the process to your immediate and lasting profit.

Where do you want yours?

Albert B. Curtis

25 Union St., --- --- Worcester, Mass.

To Improve
Greenerd Arbor Presses

Has been our constant aim for twenty years

When we commenced to make the No. 3 Greenerd Arbor Press the weight **was** 58 lbs. The price **was** \$16.

This weight has been increased to 125 lbs. and the price advance but one dollar. The rack **was** soft cold rolled steel. The pinion **was** O. H. steel out of store. **Today** the rack and pinion steel is made especially for the purpose. Our foundry is **now** helping **you** by using a steel mixture which some call a "semi-steel" and which makes a stronger casting.

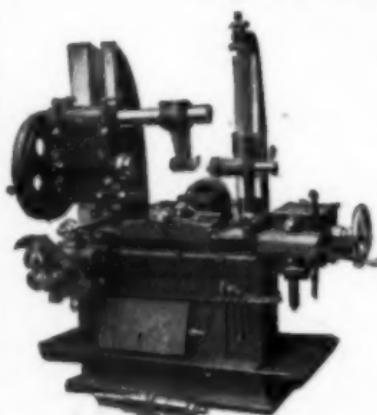
When we can make better Greenerd Arbor Presses we shall do so.



All dealers sell them.

EDWIN E. BARTLETT, 336 A St., Boston

For Smooth Running Gears For All Purposes



Newark Gear Cutting Machines

Made in all sizes,
for the automatic
cutting of accurate
and smooth running
gears for all pur-
poses.

Put your gear
cutting problem up
to specialists.

Catalog on request

Newark Gear Cutting Machine Co.
69 Prospect St., Newark, N. J.

Positive Pressure Blowers and Vacuum Pumps. Patented.



In all sizes
and for
all services

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Quiet Running
—

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Highly Efficient
—

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Carefully Built
—

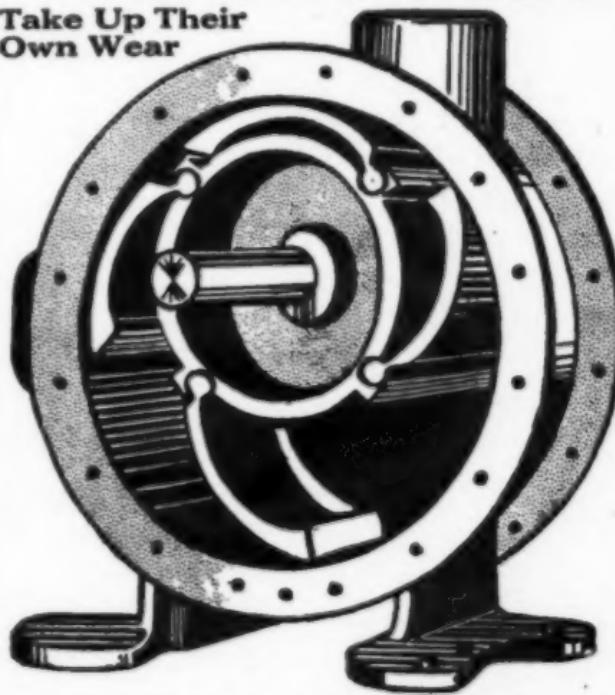
Write for data

THE LEBRAN CO., 940 N. 9th St., Phila., Pa.

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LEIMAN BROS. Rotary High Pressure
BLOWERS AND
VACUUM PUMPS

Take Up Their
Own Wear



for use with all oil, gas and coal burning appliances; for blowing chips from machines, stampings from presses, blowing out dust from motors and machines, agitating liquids, sand blasting, and in connection with automatic machines of many kinds. Also used for

VACUUM CLEANING

Capacities 2 to 338 Cubic feet per minute
1 oz. to 10 lbs. pressure, 1 to 20 inches Vacuum

Blower Catalog No. 26—Vacuum No. 27

LEIMAN BROS., 62 R John Street, N. Y.



**Handles
From
Steel**

For power tools and similar purposes

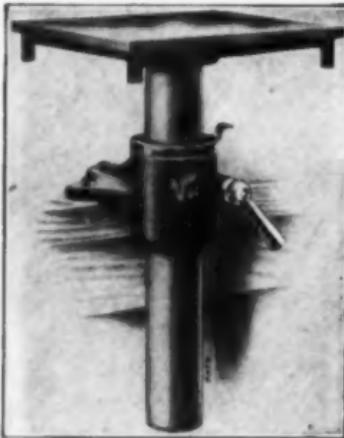
Accurate, highly finished, complete on receipt, ready to attach. Manufactured as a specialty, we offer you the result of quantity production, in quality and price. Estimates given on large screw machine work, handles and screws of any description.

Write for price list and discounts.

The Cincinnati Ball Crank Co.
Oakley, Cincinnati, Ohio



The Victor Surface Table

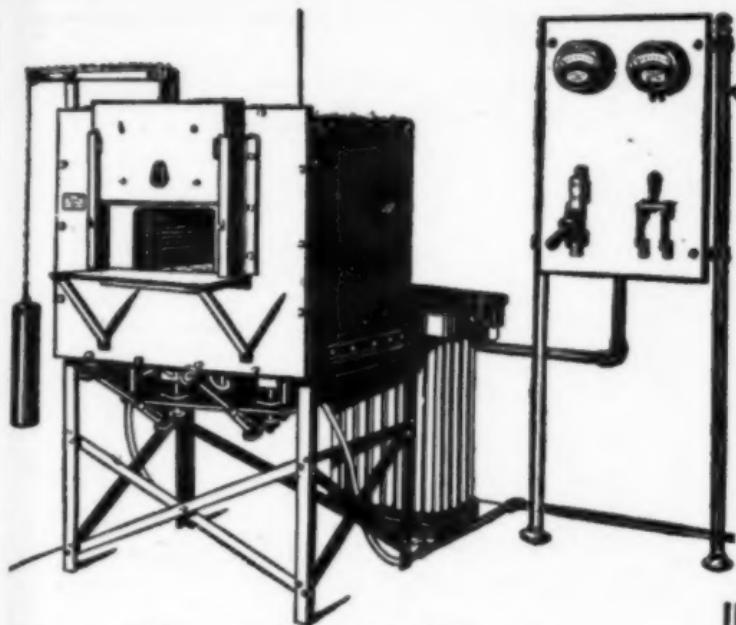


A handy attachment, used in the base of the Victor Swiveling Vise, or on bench detached from stem. Sizes, 10 and 12-in. round or square. Just the thing for die and pattern makers, etc., and for a general purpose surface table. The

Victor Swiveling Vise
is the vise hand's friend—the best vise made. It is sold on approval.

*Write for description
and approval offer.*

VICTOR VISE COMPANY
Springfield, Ohio.



Cut Your Tool Costs

—by eliminating the losses due to imperfectly hardened tools. Make every tool as accurate and long-lived as perfect hardening can make it. A competent tool hardener and the

Hoskins Electric Furnace

form a combination that can produce tools fifty to several hundred per cent more efficient than any you've ever had before.

The non-scaling, non-warping electric heat of the Hoskins Furnace and the accuracy of its regulation are a part of the reasons why. The rest are told in our "Bulletin 10." Ask for it today.

HOSKINS MANUFACTURING COMPANY

*Electric—Furnaces, Pyrometers and Heating Appliances
"International" Ammeters and Voltmeters*

461 Lawton Avenue, DETROIT

Otis Bldg.
CHICAGO

Oliver Bldg.
PITTSBURGH

20 Church St.
NEW YORK

Pattern Shop Machinery

Special Prices if you refer to this ad.



Band Saws

Chicago No. 00 27 in. Wheels
" No. 0 32 " "
" No. 1 36 " "



Saw Tables

Chicago No. 5 Stationary Table
" No. 9 Tilting Table
" No. 10 "
Boring attachment if wanted.



Jointers

8 in., 5 and 6 ft. tables and guard.
12, 16, 20, 24 and 30 in., 7 ft. tables
and guard.

Trimmers, Lathes, Core Box Tools, etc.

Ask for full descriptions

Chicago Machinery Exchange

1214-1228 Washington Boulevard Chicago

Quick Milling Attachment



For converting the regular floor
type, screw-feed milling machine,
into a small rack-feed machine for
small duplicate milling.

Dimensions

Furnished for $\frac{1}{2}$ in.
T-slot unless other-
wise ordered.

Working surface of
table $3\frac{1}{2} \times 12\frac{1}{2}$

Height 7"

Length of rack 8"

Weight 36 lbs

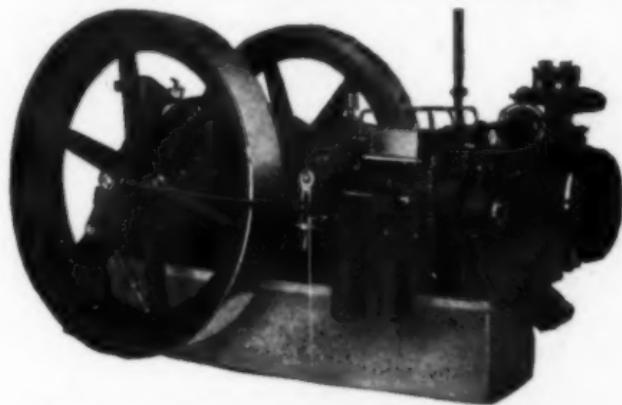
Boxed 43 lbs

Write for prices.

BURKE MACHINE TOOL CO., - - Conneaut, Ohio

A Power Plant *FREE!*

We will Install it at Our Expense and
Take Our Pay out of the Savings



The Elyria Oil Engine 25 to 125 H. P.

If you are using an average steam engine, or electric motors with central station service, we will install an Oil Engine that will deliver—

- 11 to 12 brake horse power hours on one gallon of your cheapest fuel oil;
- 9 to 10 brake horse power hours on one gallon of the same oil at one-half rated load;
- And that will run 24 hours a day for weeks without a stop—

And Take Our Pay out of the Savings!

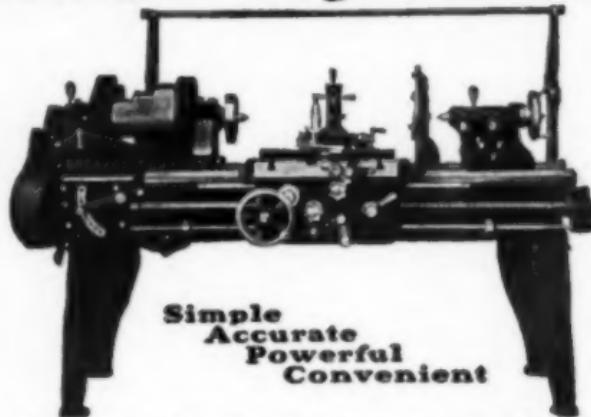
WRITE US about your present power, its cost, and cost of the cheapest fuel oil in your market; and if in our judgment our engine will meet your requirements, we will renew this proposition in writing.

We don't argue. We prove. Will you write?

The Elyria Gas Power Co.
Elyria, Ohio

Also builders of "The Little BIG ENGINE" for Natural & Producer Gas

Standard Engine Lathes



**Simple
Accurate
Powerful
Convenient**

Furnished with either standard cone or with 3-step cone double-back-geared, carrying a wide belt, with 18 spindle speeds and wide feed range.

GREAVES, KLUSMAN & CO.
Cincinnati, Ohio, U. S. A.



Cut out the "Maybes" and *know* what your Stamping Presses and other machines are producing.

Durant Counters

show up Every Workman and Machine. They are designed, built and sold *right*. Their count is absolutely accurate.

Our new 1913 Catalog No. 15 should be in your hands. Ask for it.

THE W. N. DURANT CO., Milwaukee, Wis.



JUNK

Men do not get the caps
Of Tucker's Positive Lock
Compression Grease Cups

They Won't Jar Off

For Automobiles and all kinds of machinery having excessive vibration. Cup member has internally milled threads to gauge limits, ensuring interchangeability. We are prepared to furnish the cup part in pressed sheet brass in the following sizes:

1/8 in., 1 in., and 1 1/2 in., all 24 pitch thread.

Complete	{	No. 000	1 in. pipe shank
Cups	{	No. 00	1 in. pipe shank
		No. 0	1 in. pipe shank

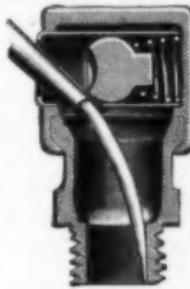
PATENTED JANUARY 11, 1910

Tucker's Oil Hole Covers

No. 5 Style B



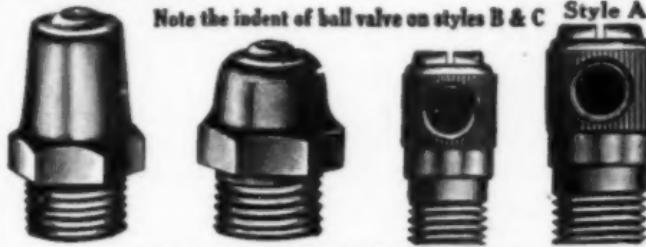
Self Closing



Style C, Self Closing

Note the indent of ball valve on styles B & C

Style A



Send for Catalogue of full line of Covers
for all kinds of machinery having oil holes

W. C. & F. C. Tucker, Hartford, Conn.

In revising our manufacturing equipment, we find the following first class Used Machine Tools, which we offer at attractive prices:

ENGINE LATHES
16x 6 Lodge & Shipley, q. c. g.
16x 6 Hendey, q. c. g.
16x 8 Reed
16x 8 Lodge & Shipley, q. c. g.
20x 8 Lodge & Shipley, q. c. g.
20x10 Lodge & Shipley, q. c. g.
20x12 Lodge & Shipley, q. c. g.
24x 8 Lodge & Shipley, q. c. g.
25x13 Sellers.
36x12 Lodge & Shipley, q. c. g.

SPECIAL LATHES
24 in.x7 ft. Lodge & Shipley
Chucking Lathe.
No. 3 Lodge & Shipley Rapid
Reduction Lathe.

METAL SAWS
No. 3 Nutter-Barnes Cold Saw
Franklin Cold Saw, 36 in. Cap.
Globe Power Hack Saw, 8 in.
Capacity.

MISCELLANEOUS

12x40 in. Mumford Molding Machine.
24 in. Aurora Upright Drill, Sliding Head.

*Write for complete description with prices of machines
in which you are interested*

The Lodge & Shipley Machine Tool Co.
CINCINNATI, OHIO, U. S. A.

Special Prices on Chucks For Lathes and Planers

The chucks listed below are of a pattern not regularly catalogued, and we can make you a special proposition on them. They are entirely new, good chucks, and we guarantee them in every respect as to material, accuracy and workmanship.

Universal or Combination Chucks

36, 30, 26, 24, 22, 21 and 18-inch, 3 and 4 Jaw
19—6-inch, 3 Jaw
2—42-inch, 3 Jaw Car Wheel

Planer Chucks

Round Base, 6 to 10-inch; Square Base, 8 to 15-inch.

A first-class opportunity for anyone equipping a lathe or planer who wants to save a percentage of cost on the equipment.

Full details on request. Write for them.

E. Horton & Son Company
Windsor Locks, Conn.

New
AND
Slightly Used Machinery
AT
Attractive Prices

New

- 15 in. x 6 ft. Rockford Lathe.
- 18 in. x 8 ft. Rahn-Larmon Lathe.
- 24 in. Queen City Back Geared Shaper.
- No. 2 Owen Plain Milling Machine.
- No. 3 Owen Plain Milling Machine.
- No. 3 Owen Universal Milling Machine.
- 2½ in. Dresses Screw Machine.

Slightly Used

- 16 in. x 6 ft. American Manufacturing Lathe, with turret equipment.
- 18 in. x 8 ft. American Quick Change Gear Lathe.
- 24 in. x 10 ft. American Quick Change Gear Lathe.
- 28 in. x 12 ft. American Loose Change Gear Lathe.
- 24 in. x 12 ft. American Planer.
- 26 in. x 12 ft. American Planer.
- 30 in. x 10 ft. Heavy Pattern American Planer.
- 36 in. x 12 ft. Heavy Pattern American Planer.
- 15 in. American Shaper.
- 4 ft. Bickford Plain Radial Drill.
- 5 ft. Western Plain Radial Drill.
- 6 ft. Bickford Plain Radial Drill.
- 6 ft. American Full Universal Radial Drill.
- American Hand Milling Machine.
- No. 3 Cincinnati Universal Milling Machine.
- No. 7 American Screw Machine.
- Brown & Sharpe Plain Grinding Machine, capacity 12 in. Diameter.
- Wais & Roos 100 lb. Hammer.
- Watson Stillman Hydraulic 60 ton Broaching Press, 5 in. ram.

The American Tool Works Co.
Cincinnati, U. S. A.

"The Greatest Clearing House of them all." ...J. J. McCabe.

The enormous space needed by these big Tools compels low prices for quick disposal —right from the shop where they had been used.

Planer—132 in. x 26 ft. "Pond Mch. Tool Co. 's'" (Plainfield), four heads. Weight, 170,000 lbs.

Planer—84 in. x 84 in. x 16 ft. "Niles Tool Works." 3 heads.

Planer—72 in. x 72 in. x 14 ft. four heads—"Niles Tool Wks.," Co. 's'.

Planer—70 in. x 70 in. x 25 ft. four heads—"Wm. Sellers & Co. 's'.

Planer—56 in. x 56 in. x 16 ft., two heads—"G. A. Gray Co. 's'.

Upright Boring and Turning Mill—10 ft. swing. Double head—"Niles Tool Wks.,"

At \$350—Standard make of Iron Planer, 36 in. wide, 36 in. high, 10 ft. long.

At \$950—"Putnam" Triple-headed Lathe, 56 in. swing, 16 ft. bed.

At \$400—"Putnam" style Lathe, 28 in. swing, 15 ft. bed.

Universal Grinding Machine—20 in. Swing, 72 in. between centers—"Brown & Sharpe."

Pipe Machine—2½ to 10 in. with Dies—"Jarecki."

Double Punch and Shears—26 in. throat—"Hilles & Jones," Weight, 26,000 lbs.

Bonding Rolls—10 ft. between centers.

Car Wheel Lathe—42 in. Swing.

Prices Low Enough

Immediate

Delivery

Radial Drill—6 ft. Arm, Speed box—"Bickford Co. 's'.

Radial Drill—5 ft. Arm, Heavy "Pond Mch. Tool Co. 's'" (Plainfield).

Multiple Drill—14 spindle—"Baush Co. 's'"—Speed box.

Slotting Machine—16 in. Stroke "Bement-Miles."

Delivery

Enough

Planer—56 in. x 56 in. x 16 ft., two heads—“G. A. Gray Co.,”
Upright Boring and Turning Mill—10 ft. swing, Double-head—“Niles Tool Works.”

Triple-gearied Lathe—50 in. swing, 32 ft. bed—“Putnam Machine Co.,”

Triple-gearied Lathe—48 in. swing, 25 ft. bed—“Niles Tool Works.”

Triple-gearied Lathe—Gap-bed, Extension type, 48-72 in. swing, 14 ft.—“Harrington.”

Triple-gearied Lathe—48 in. swing, 16 ft. bed—“Putnam Machine Co.,”

At \$600—“New Haven” Iron Planer, 48 in. wide, 36 in. high, 10 ft. long.

Immediate Selling

At \$475—“Jones & Lamson” Flat Turret Lathe, 2 in. x 24 in.

At \$475—“Bullard” Upright Boring Mill, 30 in. swing. Turret head.

At \$1075—“Wm. Sellers & Co.,” 84 in. swing, Upright Boring and Turning Mill.

Radial Drill—7 ft. Arm, Half-Universal—“Niles Tool Wks.”

Bending Roll—10 ft. between centers—“Bement-Miles.”

All other sizes of Lathes—
Planers—Upright Boring and Turning Mills—Horizontal Boring and Drilling Machines—
Radial and Upright Drills—
Slotting Machines—Milling Machines, plain and universal—
Shapers, Turret—Lathes—
Gear Cutters—Pipe Machines—
Bolt Cutters, Steam Hammer—
Grinders—Railroad Tools—Boiler-shop Tools, etc.

J. J. McCABE, 30 Church St., NEW YORK

THE E. L. ESSLEY MACHINERY CO.

555-557 WASHINGTON BLVD. CHICAGO
222 GRAND AVE MILWAUKEE

DRILLS.

12 in. Willey electric, 210 v., d. c.
4 spindle Dwight-S sensitive drill.
4 spindle Quint turret drill.
6 spdl. No. 3 Garvin, multi., table fd.
20 in. S. & W., sq. base.
18 in. Baker Bros. high speed, (2).
23 in. Barnes Sr., st. hd., b. g.; p. f. (3).
24 in. Hamilton, sl. hd., b. g., p. f.
26 in. Bickford, st. hd., b. g.

21 in. Hamilton, b. g., p. f.
23 in. Bickford, b. g., w. & l. feed.
26 in. Blasdell, sl. hd., w. f.
26 in. Bickford, heavy type, b. g., w. f.
24 in. Aurora, sta. head, b. g., p. f.
25 in. Barnes sta'ry hd., b. g., and p. f.
28 in. Lodge & D., sl. hd., b. gd., p. f.
34 in. Barnes sl. hd., b. g., p. f.
2 ft. American, sensitive radial.

ENGINE LATHES.

14x6 Flather, compound rest.
15x6 Walcott, back geared, rebuilt.
16x6 Muller, b. g., p. c. f.
16x6 Springfield, c. r., p. c. f.
16x7 Springfield, c. r., p. c. f.
18x8 Blasdell, c. r., h. s.

18x10 Blasdell, plain rest.
18x10 Putnam.
20x12 Le Blond, p. r., h. s.
22x11½ New Haven, c. r.
24x12 Schumacher & B., c. r., p. c. f.
30x17 Gleason, pl. r., p. c. f.

MISCELLANEOUS LATHES.

30 in. x 8 ft. P. & W. p. hd. chucking lathe, 24 in. 4-j. chks., p. f. to t. s.
18 in. Gisholt, standard turret, comp.

Pearson b. g. hub machine, like turret lathe, 28 in. h. s.
22x7 Lodge & D., turret, bk. gd.

PLANERS.

17x17x18 Whitcomb crank planer.
18x18x36 L. W. Pond, 1 head.

24x24x 6 L. W. Pond, 1 head.
30x30x16 Hamilton, 2 heads.

SCREW MACHINES—TURRET LATHES.

2 in. Cleveland automatic.
No. 3 Foster-K. pl. hd., 1½ in. cap.
No. 2 Warner & S., pl. hd., w. f., 1½".
No. 1 Pratt & W. screw machine.

18 in. Lodge & D., b. g., p. f. to t. r. ret slide, 2 in. w. f. cap.
2 in. x 24 in. Jones & L. flat turnt cone machine, hne order.

MISCELLANEOUS.

Blower, No. 4 Sturtevant, 7 in. out.
Blower, 30 in. Buffalo, 5½ in. outlet.
Blower, No. 6 Boston & Co., S.
Bolt cutter, 1 in. National, dbl. hd.
Bolt cutter, 1½ in. Nat'l. sgl. hd.
Bolt cutter, 1½ in. Adams, single.
Boring mill, 30 in. Bullard, 3 j-ck.
Boring mill, 36 in. Colburn, 3½ ck.
Boring mill, 60 in. Niles, 2 hds.
Boring mill, 51 in. Niles.
Brake, 4 ft. Robinson, 16 ga.
Cold saw, No. 4 Keystone, 14 in.
Cutting-off mach., 2 in. Hurlbut & R.
Gas furnace, No. 1 Westmacott.
Gear hobbler, Reynolds (2).
Grinder, Gisholt universal tool.
Grinder, disc, No. 4 Besly, 18 in.
Grinder, disc, No. 12 Besly, 12 in.
Grinder, plain, Brown & S., 12x18 in.
Grinder, No. 3 Brown & S.
Grinder, 20x3 Diamond, single wet.
Grinder, Greenfield, tap and die.
Hammer, 25 lb. Justice, belt.
Hammer, 100 lb. No. 4 Beaudry, belt.

Hammer, steam, 250 lb. Bell.
Keyseat miller, J. T. Burr.
Miller, American hand.
Miller, No. 5-B Becker-B, plain.
Miller, No. 3 Garvin, plain.
Miller, No. 2½ Garvin, plain, b. & g.
Miller, No. 2 Kearney & Trecker, back geared, plain.
Pipe mch., 4 in. Borden, complete.
Pulley lathe, 30 in. Stevens.
Punch and shear, No. 2 Colton, double end, 20 & 8 in. throat capacity 14 in. rounds.
Punch & shear, New Doty comb 4 x 4 in. flats, 6 in. thrt.
Punch press, No. 4 V. & O., straight sided, 21 in. stroke, 31" bet. uprights.
Riveter, 3 in. Shuster.
Roll threading mch., Rudolph & L.
Squaring shear, 50 in. power.
Shear, 10 ft. Niagara, No. 1120.
Tapper, No. 1 Garvin, vertical.
Toggle press, 10 ft. Robanson.

16 in. x 6
14 in. x 6
15 in. x 6
16 in. x 8
17 in. x 6
18 in. x 8
19-30 in. x
19 in. x 15
19 in. x 10
21 in. x 12
25 in. x 20
32 in. x 16 f.

No. 2 War
2 in. x 24 in.
16 in. x 6 ft.
16 in. Pratt
18 in. x 6 ft.
21 in. and 2
24 in. Wale
1 in. and 2

No. 0½ Brow
No. 3 Owen
No. 14½ Bra
No. 15 Beck

16 in. x 30 in.
28 in. x 38 in.
32 in. x 38 in.

16 in. Spring
16 in. Fitch
16 in. Smith
16 in. Smith
16 in. Cincin

Drills, Grin

Sen

Marshall
75. Jefferson

Second Hand Machinery

Engine Lathes.

- 11 in. x 6 ft. Flather, compound rest, taper attachment.
- 11 in. x 6 ft. Whitecomb-Blaidsell, compound rest, 3 step cone.
- 11 in. x 6 ft. Flather, rise and fall rest.
- 11 in. x 8 ft. Flather, compound rest.
- 11 in. x 6 ft. Bradford, raising blocks to swing 20 in., compound rest.
- 11 in. x 8 ft. Schumacher & Boye, 3 step cone, taper attach., chuck.
- 18 30 in. x 8 ft. American gap, compound rest, hollow spindle.
- 11 in. x 15 ft. Whitecomb-Blaidsell, compound rest, chuck.
- 11 in. x 10 ft. Fitchburg, compound rest.
- 9 in. x 12 ft. Schumacher & Boye, three step cone, chuck fitted.
- 9 in. x 20 ft. Sellers, solid spindle.
- 9 in. x 16 ft. Schumacher & Boye, raised to 36 in., three step cone.

Turret Lathes, Screw Machines.

- No. 2 Warner & Swasey turret lathe.
- 2 in. x 24 in. Jones & Lamson flat turret, cone drive., friction head.
- 11 in. x 6 ft. Lodge & Davis turret.
- 9 in. Pratt & Whitney, power feed, auto. chuck.
- 18 in. x 6 ft. Fox Monitor turret.
- 21 in. and 25 in. Gisholt heavy turret lathes.
- 9 in. Walcott & Wood.
- 11 in. and 1/2 in. Cleveland automatic screw machines.

Milling Machines.

- 10 1/2 in. Brown & Sharpe universal.
- No. 3 Owen plain, belt feed.
- No. 14 1/2 Brainerd universal.
- No. 15 Becker-Brainerd universal, dividing head, spiral gears.

Planers.

- 9 in. x 30 in. x 10 ft. Gleason.
- 9 in. x 38 in. x 8 ft. Ohio.
- 9 in. x 38 in. x 10 ft. Gray.

Shapers.

- 11 in. Springfield, crank.
- 11 in. Fitchburg, travelling head.
- 11 in. Smith & Mills, plain crank.
- 11 in. Smith & Mills, back gear crank.
- 11 in. Cincinnati, back gear crank.

We have

Drills, Grinders, Gear Cutters, Steam Hammers, Bolt Cutters, Pipe Machines, Boring Mills, etc.

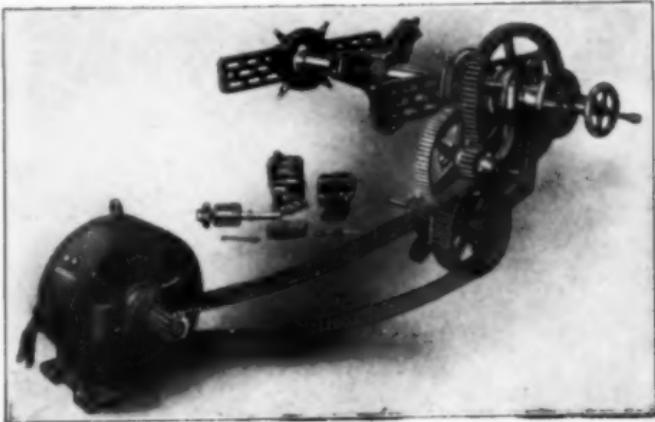
A fine assortment.

*Send for our March list second hand machinery,
giving complete descriptions*

Marshall & Huschart Machinery Company

75. Jefferson St., Chicago. 334 N. Capitol Ave., Indianapolis.
915 Chemical Bldg., St. Louis.

Bores In Any Position Very Cramped Places Extra Quick Time



Portable Boring Bar, Driven with Motor and Silent Chain.

Boring cylinders in place is the specialty of our time saving Portable Boring Bar. Being readily operated in a space which allows the taking of the piston out of the cylinder, repairs in many cases are effected in the time ordinarily needed to disconnect the parts. The cost is often saved on one job.

You will find it equally well adapted for the boring of all kinds of engines, pumps, air compressors, steam hammers, valve seats, etc. We make special sizes for special work

Our catalog gives many time and labor saving pointers. Use a copy.

H. B. Underwood & Company
1022 Buttonwood St., Philadelphia, Pa.

Lists
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Prices
parties
slip inc

Enterp

4 spindle
3 spindle
11" bene
11" with

1" arbor
1" arbor
Surface
Paper kn

16" x 1
18" x 6" I
24" x 12" b
30" x 17" b

2 sp. 2" P
" LaVig
" LaVig

" in $\frac{1}{2}$ ",
Small foot
" in $\frac{1}{2}$,
16" in $\frac{1}{2}$,
" in $\frac{1}{2}$,
No. 1 Am
No. 2 Am
No. 3 Bla

Hack, po
Cir., iron b

Square sh
15" gap sh
Brake, 6'
Brake, 8'
Brake, 8' 6"
Boiler plate
Folder, 20

Aircompre
Air hammer
Bench plan
Bike tube
Die filer, S
Gas furnac
We have c
2, 3, 5 ft.;
Keyseater
1, 1 $\frac{1}{2}$, 1 $\frac{1}{2}$, 2,
Planers, 24
2, 3, 4, 4 $\frac{1}{2}$, 5
30, 32, 36, S
We will de

Second-Hand Machinery.

Lists of second-hand machinery, either for sale or wanted, will be published under this heading at the rate of **40 cents a line**, across the page, each issue, with a minimum charge of **\$4.00**. Sub-headings are counted as one line, but the name and address of advertiser are not included in the space charged for. Prices and full descriptions of the machines listed will be furnished by the parties offering them for sale. If you do not find what you require, use the slip inclosed with each book to make known your wants to the publisher.

FOR SALE BY

Enterprise Machy. Co., 521 Monroe St., Phone Main 1295, Chicago

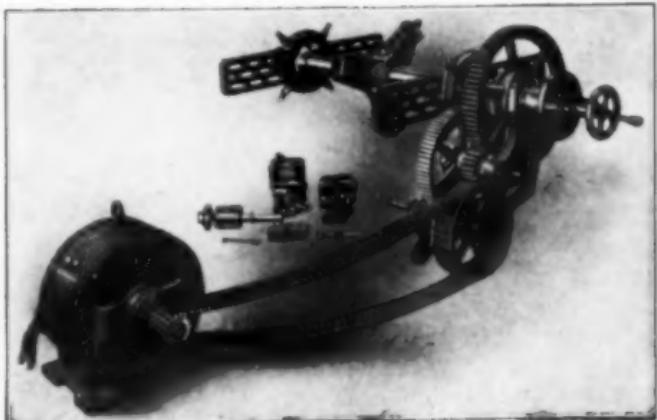
Among others we have the following Tools listed for sale:

DRILLS	
4 spindle Woodward & R.	\$ 110.
2 spindle separate drive.	45.
11" bench on stand.	18.
4" with chuck on tables.	19.
GRINDERS	
1" arbor, bench.	\$ 8.
1" arbor, on ped.	18.
Surface grinder.	35.
Paper knife, 4 ft., (cost \$300).	100.
LATHES.	
16"x 6' Van Wyke comp. r.	\$ 275.
18"x 6' Blaidsdeli, 1½ h.s.	98.
24"x12' back gear, comp. r.	210.
30"x17' Pond, power and feed.	500.
TURRET LATHES AND SCREW MACHINES.	
2 sp. 4" P. & W. auto. \$100. tools.	\$ 75.
LaVigne automatic.	250.
LaVigne automatic 12 col.	275.
PUNCHES.	
1" in 4", hand lever.	\$ 32.
Small foot power. \$10. and.	20.
1" in 4", power, geared, 14".	125.
1" in 14", power, geared.	300.
1" in 4", power, grd., 14", new.	320.
No. 1 American Can, new.	87.
No. 2 American Can, like new.	135.
No. 3 Bliss-Stiles, s. b.	125.
SAWS.	
Hack, power, Q. & C.	\$ 11.
Cir., iron bed, r. & l. 10" blade.	35.
TIN AND WOOD-WORKING.	
Square shear, 30".	\$ 25.
15" gap shear, 42", 14 gauge.	165.
Brake, 6' Dries & K., power.	180.
Brake, 8' Keene, hand.	85.
Brake, 8' dbl. truss, hand.	55.
Boiler plate roll, 1" cap., (new).	300.
Folder, 30",	12.
MISCELLANEOUS.	
Air compressor, No. 2 Eureka.	\$ 80.
Air hammer, 1 h.p. \$25, 2 h.p.	15.
Bench planer, 10x6x12, hand.	25.
Bike tube cutter, power.	18.
Die filer, Simplex.	65.
Gas furnace, power.	30.

We have calls we cannot fill for over 200 machines; Drills, 12, 16, 20; Radials, 2, 3, 5 ft.; 2 & 3 spindle; Gear Cutter; Cylinder, Surface and Cutter Grinders; Keyseater; Engine lathes, 12, 16, 18, 24, 40"; Speed, 9"; Screw machines, hand, 1, 1½, 1¾, 2, 3"; Auto, 4" Acme or P. & W.; Millers, plain, universal, hand; Planers, 24, 36, 48, 60"; Profiling mach., Punch, Bliss, 20, 21, 4½ R. & K. Can 2, 3, 4, 4½, 5½, 12" Drawing; Shapers, 12, 14, 18, 22 Sq. shears, Band Saws, 24, 30, 32, 36. Saw tables, metal top, etc., etc., etc.

We will design and build machines for your special work.

Bores In Any Position Very Cramped Places Extra Quick Time



Portable Boring Bar, Driven with Motor and Silent Chain.

Boring cylinders in place is the specialty of our time saving Portable Boring Bar. Being readily operated in a space which allows the taking of the piston out of the cylinder, repairs in many cases are effected in the time ordinarily needed to disconnect the parts. The cost is often saved on one job.

You will find it equally well adapted for the boring of all kinds of engines, pumps, air compressors, steam hammers, valve seats, etc. We make special sizes for special work.

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H. B. Underwood & Company
1022 Buttonwood St., Philadelphia, Pa.

Lists of
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Enterprise

4 spindle
2 spindle
11" bench
11" with ch

1" arbor,
1" arbor,
Surface gr.
Paper kni-

16"x 6' V
18"x 6' B
24"x 12' ba
30"x 17' Po

2 sp. 3" P.
1" La Vign
1" La Vign

1" in 4", h
Small foot
2" in 4", p
1" in 12", L
1" in 4", p
No. 1 Amer
No. 2 Amer
No. 3 Bliss

Hack, pow
Cir., iron bo

Square she
18" gap she
Brake, 6' L
Brake, 8' L
Boiler plate
Folder, 30"

Air compre
Air hammer
Bench plan
Bike tube c
Die filer. Si
Gas furnace
We have ca
2, 3, 5 ft.; 2
Keyseater
1, 12, 14, 2, 3
Planers, 24
2, 3, 4, 4½, 5
30, 32, 36, Sa
We will des

Second-Hand Machinery.

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FOR SALE BY

Enterprise Machy. Co., 521 Monroe St., Phone Main 1295, Chicago

Among others we have the following Tools listed for sale:

DRILLS.

4 spindle Woodward & R.	\$ 110.	13" $\frac{1}{2}$ " belt sq. table,	\$ 23.
3 spindle separate drive.	45.	15" $\frac{1}{2}$ " belt drive.	35.
11" bench on stand.	18.	20" Mil. power feed & k. o.	55.
4" with chuck on tables.	19.	36" Post (2" capacity) power.	28.

GRINDERS.

1" arbor, bench	\$ 8.	Edge grinder, power fd., hvy.,	\$ 125.
1" arbor, on ped.	18.	Cutter grinder, Garvin.	24.
Surface grinder.	35.	Rivett ball race gr. (cost \$500).	300.
Paper knife, 4 ft., (cost \$100).	100.	Horizontal disc 20" (press),	155.

LATHES.

16" x 6' Van Wyke comp. r.	\$ 275.	Bench precision.	\$ 42.
18" x 6' Blaisdell, 10 h.s.	98.	11" x 5' lever feed speed.	35.
24" x 12' back gear, comp. r.	210.	12" x 4' Lodge & Davis speed.	28.
28" x 17' Pond, power and feed.	500.	12" x 4' b. g. speed, comp. r.	80.

TURRET LATHES AND SCREW MACHINES.

2 sp. $\frac{1}{2}$ " P. & W. auto, \$100 tools.	\$ 75.	1" hand 7 hole turret.	\$ 90.
1" LaVigne automatic.	250.	12" hand Bardons & O., 7 col.,	325.
1" LaVigne automatic 12 col.	275.	16" x 4", 24" h.s. turret, heavy.	80.

PUNCHES.

1" in $\frac{1}{2}$ ", hand lever	\$ 32.	734 Bliss, b. g., 12" stroke.	\$ 750.
Small foot power, \$10 and.	20.	750 Bliss, arch, not geared.	800.
4" in $\frac{1}{2}$ ", power, geared, 14"	125.	24 Bliss, toggle, dbl. acting.	850.
1" in 12", power, geared.	300.	42 R. & K. arch, 30"	300.
1" in $\frac{1}{2}$ ", power, grd., 14", new.	320.	35 Consol, b. g., like new.	475.
No. 1 American Can, new.	87.	3 Crosby.	85.
No. 2 American Can, like new.	135.	Hand screw press, (\$100) new.	40.
No. 3 Bliss-Stiles, s. b.,	125.	Auto fd. for punch, (new, fitted)	50.

SAWS.

Hack, power, Q. & C.	\$ 11.	Cross cut, r.r., swing, like new.	\$ 60.
Cir., iron bed, r. & f., 10" blade.	35.	Iron bed, metal or wood.	15.

TIN AND WOOD-WORKING.

Square shear, 30"	\$ 25.	Wood shaper, 2 spdl., heavy.	\$ 35.
15" gap shear, 42", 14 gauge.	165.	Sander, Shimer, belt.	55.
Brake, 6' Dries & K., power.	180.	Sander, drum, oscil., Superior.	55.
Brake, 8' Keene, hand.	85.	Sander, brush, oscil., Block.	160.
Brake, 8' dbl. truss, hand.	55.	Dbl. surfer, Hall & B.	250.
Boiler plate roll, $\frac{1}{2}$ " cap., (new).	300.	Planer, timber, 24x30, trav. bed.	1200.
Folder, 20",	12.	Sash sticker, (new \$225).	75.

MISCELLANEOUS.

Air compressor, No. 2 Eureka.	\$ 80.	Oil separator, No. 2 Nat'l. c.s.	\$ 65.
Air hammer, 1 h.p. $\frac{1}{2}$ h.p.	15.	Pulley bor. mch., 3 to 24", self-chucking, auto., new.	400.
Bench planer, 10x6x12, hand.	25.	Tapper, Burke (pedestal).	15.
Bike tube cutter, power.	18.	Time clocks, 100, \$110; 200, \$180; 50, \$65.	
Die filer, Simplex.	65.	Tire bender.	\$ 85.
Gas furnace, power.	30.		

We have calls we cannot fill for over 200 machines; Drills, 12, 16, 20; Radials, 2, 3, 5 ft.; 2 & 3 spindle; Gear Cutter; Cylinder, Surface and Cutter Grinders; Keyseater; Engine lathes, 12, 16, 18, 24, 40"; Speed, 9"; Screw machines, hand, 1, 1 $\frac{1}{2}$, 2, 3"; Auto, $\frac{1}{2}$ Acme or P. & W.; Millers, plain, universal, hand; Planers, 24, 36, 48, 60"; Profiling mach., Punch, Bliss, 20, 21, 4 $\frac{1}{2}$ R. & K. Can 2, 3, 4, 4 $\frac{1}{2}$, 5 $\frac{1}{2}$, 12" Drawing; Shapers, 12, 14, 18, 22 Sq. shears, Band Saws, 24, 30, 32, 36. Saw tables, metal top, etc., etc., etc.

We will design and build machines for your special work.

SECOND-HAND MACHINERY

FOR SALE BY

Prentiss Tool & Supply Co., New York, Boston, Buffalo, Syracuse.

BORING MILLS.

24" Bar Bement, horizontal.

2 spindle Foote-Burt, cylinder.

5" Bar Beaman & Smith, horizontal.

34" Colburn, vertical.

51" Bement-Miles, vertical.

7" Ridgeway, vertical.

DRILLS.

42" Gang, plain radial.

36", 4" and 60" Bickford pl. radials.

21" and 30" Snyder sliding head.

3-spindle 20" Barnes, gang.

Style F Baker Bros., heavy.

7-spindle Slate, gang.

2-spindle Foote-Burt.

6 and 10-spindle Gardam, multiple.

GRINDERS.

Pratt & Whitney, vertical surface.

Walker automatic, surface.

No. 11 Landis, plain.

No. 1 Cincinnati, universal.

10"x30" Landis, universal.

No. 6 Rivett, internal.

MILLERS.

Nos. 1, 2 & 3 Cincinnati, universal.

No. 51 Becker, horizontal.

No. 9 Kempsmith, plain.

No. 7 Becker, Lincoln.

No. 12 Brown & Sharpe, plain.

8' Beaman & Smith, planer type.

LATHES.

14"x 5' Hendey, c. r.

16"x 6' Reed, c. r., p. c. f.

16"x 6' Hendey, c. r., p. c. f.

16"x 8' Prentice, c. r., p. c. f.

16"x 10' Hendey, c. r., p. c. f.

18"x 8' Lodge & Shipley, pat. hd.

18"x 8' Reed, c. r., p. c. f.

18"x 14' Flather, c. r., p. c. f., taper.

20"x10' Draper, c. r., p. c. f.

22"x10' Bullard, c. r., p. c. f.

24"x12' Putnam, c. r., p. c. f.

26"x18' Pond, c. r., p. c. f.

27"x12' Pratt & Whitney, c. r., p. c. f.

29"x12' Putnam, c. r., p. c. f.

30"x16' Fay & Scott, c. r., p. c. f.

32"x12' Johnson, c. r., p. c. f.

36"x16' Reed, c. r., p. c. f.

38"x20' Fay & Scott, c. r., p. c. f.

40"x18' Newark, c. r., p. c. f.

46"x38' Fitchburg, c. r., p. c. f.

102"x35' Bement, c. r., p. c. f.

16-32"x8' Fay & Scott, gap.

20-42"x12' Fay & Scott, gap.

32"x18' column facing lathe.

16"x10' automatic threading.

60" Stevens, pulley.

11"x 4' Wells, speed.

14"x 5' American, Fox.

PLANERS.

15"x15"x 3' Pratt & Whitney.

24"x24"x 6' Whitcomb.

24"x24"x 6' Cincinnati.

26"x26"x 6' Wheel, 1 head.

30"x30"x 8' Powell, 1 head.

30"x30"x 8' Davis & Egan.

36"x36"x12' Lodge & Davis.

48"x48" Sellers.

52"x42"x12' Cincinnati.

60"x60"x15' Sellers.

60"x46"x12' New Haven.

71"x80"x14' Pond..

HAMMERS.

40 lb., helve.

1000 lb. Pratt & Whitney, drop.

PRESSES.

Nos. 1 & 2 Hibbard, inclinable.

No. 22 Perkins, double acting.

SCREW MACHINES.

24" American, heavy.

22" Bullard, heavy.

21" Gridley, 1-spindle.

1" 1 and 18" Hartford.

1" Pratt & Whitney, auto.

1" Brown & Sharpe, auto.

SHAPERS.

20" Gould & E. and Kelley.

15" Ohio, crank.

MISCELLANEOUS.

Plate planer, 19".

Punch and shear, double end, 7

throat, Bremer.

Slotter, 10" Putnam.

Slotter, 15" Dill.

Squaring shear, 30" Niagara.

Tumbler, 30"x24" Smith.

14" Lodge & Davis, crank.

15" Potter & Johnston, crank.

Automatic pinion, slate.

Bending rolls, 8', 4" cap.

Cold saw, 9" Espen Lucas.

Dynamometer, 40 h. p. Sprague.

Gear cutter, 24" G & E.

Keyseaters, Nos. 2 and 3 Giant.

Pipe machine, 3" Jarecki.

SECOND-HAND MACHINERY

FOR SALE BY

E. G. Eldridge Machinery Co., 29-31 N. Jefferson St., Chicago, Ill.

High Quality and Low Prices on the following—satisfaction guaranteed.

DRILLING PRESSES.

Perry bench drill, 4" drilling capacity.
10" Stecher b. b., h. s. bench drill, capacity 4".
12" Cincinnati single spindle sensitive drill and c. s.
2 spindle Dwight-Slate sensitive gang, second hand.
4 spindle Woodward & Rogers sensitive gang, second hand.
20" Milwaukee plain sensitive feed drill.
20" Milwaukee wheel and lever feed drill.
20" Milwaukee wheel and lever and back geared drill.
20" Rockwell, back gear, power feed and automatic stop.
24" Milwaukee, sliding head, back gear, power feed and automatic stop.
24" plain radial, Wm. E. Gang, cone driven, tapping attachment.

ENGINE LATHES.

9"x5' Sebastian, foot power, chuck and extra tools, second hand.
11"x5' Rockford, comp. rest, power cross feed, dbl. fr. c. s., new.
12"x6' Seneca q. c. g. tool room lathe, new.
14"x6' Monarch, 4 step cone, single back gear, new.
14"x8' Monarch, 4 step cone, single back gear, new.
16"x8' Monarch, 4 step cone, single back gear, new.
16"x8' Rahn-Larmon, quick change gear, 5 step cone, s. b. g., new.
18"x10' Monarch, 5 step cone, single back gear, new.
22"x10' Rahn-Larmon, 5 step cone, single back gear, new.

MILLING MACHINES.

No. 2 P. & W., b. g., Lincoln type, second hand.
No. 1½ Rockford, b. g. plain, new.
No. 0 Owen, back gear plain, new.
No. 2 Owen, b. g. plain, new.

PLANERS.

20"x20"x4' Pease, 1 hd., second hand.
22"x22"x5' Pond, 1 hd., second hand.

PUNCH PRESSES.

Nos. 1, 2 & 3 Rockford, o. b. i., new.
No. 1 K. & K., o. b. i. standard, (2).
No. 3 R. & K., dbl. action, o. b. i., each with dial feed, (2).
No. 4 R. & K., American Can, o.b.i., second hand.
No. 3 Hoept, o. b. i., sec. hd.

SHAPERS.

12" American, s. g. crank, sec. hd.
12" Rockford, s. g. crank, new.

SCREW MACHINES.

No. 1 Brown & Sharpe semi-automatic, second hand.
No. 2 Bardons & Oliver, 1" wire feed capacity, new.
No. 2 Garvin, 1½" w. f. capacity hd. screw mach., second hand.
15"x6' Dreses g. f. h. univ. Fox Monitor, second hand.

MISCELLANEOUS.

Cold saw, Higley, 14" blade, second hand.
Cane, portable, 2-ton Dale, high wheel, second hand.
Jaws, No. 3 Buffalo, 7" outlet, nearly new, (2).
Gas furnace, American.
Ginder, plain surface, La Salle, with micrometer feed, new.
Ginder, large planer type, 2 vert. spds. and cup wheels, second hand.
Metal melter, Walker non-oxydizing, cap. 11" diam., second hand.
Motors, 5 h. p., Peerless, 1,050 r.p.m., 230 v., d.c., with switches and starting boxes, (2).
Motors, 10 h.p. ditto., 800 r.p.m., (2).
Polishing lathes, heavy, second hand, (2).
Wire spinning machines, Grant, all sizes.
Wire straightener and cutting-off machine, 3-16" Adt. Shuster, 4' length and shorter, new.
Any other machines and small tools, new and second hand. Write for new list just out. Will buy your machinery or entire plant.

SECOND-HAND MACHINERY

FOR SALE BY

C. C. Worner Mach'ry Co., 94-96 W. Woodbridge St., Detroit, Mich.

Send for our No. 96 Catalog.

ENGINE LATHES.

14" x 6' Lodge & Davis.
15" x 6' Blaisdell.
15" x 6' Flather.
15" x 6' Von Wyck.
16" x 8' Perkins.
16" x 6' Blaisdell.
16" x 6' Walcott & Wood.
16" x 6' Pratt & Whitney.
16" x 6' Porter.
18" x 10' Prentiss.
18" x 8' 6" Walcott.
18" x 7' 6" New Haven.

24" x 24" x 6' Hendy.
24" x 24" x 7' New Haven.
28" x 28" x 6' Pond.
30" x 30" x 14' 6" Miles.

No. 2 & No. 6 Diamond, wet.
No. 4 Diamond, double end.
No. 24 Landis, crank.
No. 2 Auburn, wet.

2, 3 and 6-spd. Fox.
3-spd. Barnes.
2-spd. Woodward & Rogers.
4-spd. Woodward & Rogers.
4-spd. Gardam.
4-spd. Pratt & Whitney.
6-spd. Foote-Burke.

No. 2 Stiles & Parker.
No. 5 Eaton.
No. 30-A Model B, Perkins.

No. 0 Le Blond, plain.
No. 1 Cincinnati, plain.
No. 1 Grand Rapids, plain.
No. 14 Grand Rapids, plain.

Libbey full swing.
No. 1 American, square arbor.
No. 1 Warner & Swasey.
No. 2 American.
14" Jones & Lamson.
15" B. & O., plain head.

1, 2 and 3" Cleveland.
Nos. 0, 1 and 2 Brown & Sharpe.
No. 1 Pratt & Whitney.

11" x 4' Wells.
11" x 4' Blount.
12" x 5' Diamond.
13" x 5' American.

Boring mill, horiz., No. 0 Barrett.
Bulldozer, No. 0 Williams & White.
Cold saw, No. 5 Cochrane-Bly.
Cutting-off mech., No. 4 Hurlburt & R.
Gasoline engine, 6 h. p. Cook.
Gasoline engine, 12 h.p. Fairb'ks-M.
Gear cutter, No. 2 Newark.

18" x 6' Jones & Lamson.
18" x 7' Perkins.
18" x 8' New Haven.
18" x 9' 6" New Haven.
21" x 10' Bradford.
21" x 11' Lodge & Davis.
22" x 8' Fifield.
22" x 10' Niles.
22" x 16' Putnam.
28" x 10' Hamilton.
28" x 12' New Haven.
26" x 16' Schumacher & Boye.

PLANERS.

31" x 31" x 9' Brettell.
36" x 36" x 10' Niles, 1 head.
42" x 42" x 10' Gleason, 2 heads.
42" x 42" x 12' Fitchburg, 2 heads.

GRINDERS.

No. 12 Norton, double end.
No. 164 Wells, cutter & reamer.
Fellows gear cutter.
No. 16 Valley City, wet.

DRILL PRESSES.

12-spd. National.
26" Sliding head.
28" Snyder.
31" B. F. Barnes.
36" Prentiss.
No. 13 Advance, post.
No. 14 Canedy-Otto, post.

PRESSES.

No. 31 Toledo.
No. 53 Fowler, fly wheel.
No. 14 1/2 Stiles & Parker.

MILLING MACHINES.

No. 2 Cincinnati, plain.
No. 2 Davis & Egan, plain.
No. 4 1/2 Brainerd, plain.
No. 7 Brainerd, Lincoln.

TURRET MACHINES.

16" American Fox.
18" Universal Fox.
18" Bardens & Oliver.
20" Star Tool Co.
21" Lodge & Davis.
24" Davis.

SCREW MACHINES.

No. 3 Hartford.
10" Warner & Swasey.
16" Garvin.

SPEED LATHES.

13" x 6' Blount.
12" x 5' Morse.
7" x 31" Stark, bench.
No. 6 Bliss, spinning.

MISCELLANEOUS.

Gear cutter, No. 3 Newark.
Hammer, 25 lb. Braclev.
Hammer, strap, 75 lb. Bradley.
Keyseater, No. 2 Mitts & Merrill.
Profiler, 2-spindle, No. 1 Garvin.
Pulley lathe, 52x36" Stevens.
Time clock, 100 key. Bundy.

707-71

Below
issue
be ha

39" Bul
72" Pon
2" bar L
4" bar B
2" Lucas

21" Davi
1 spdl. R
power
28" Rock

28" Dre
table, gr
4" Prentic

No. 60 H
10" x 66" L
No. 1 1/2 Lan
No. 3 Lan

W" G. &
good con
No. 2 Dwig
3" Brown

All sizes fr

3" Bush ca
10" x 22" x 6" C
3" x 24" Pow
3" New Ha

No. 2 B. &
W" x 3" Inger
No. 5. B. & S

3" Flather,
feed to hea
" Hendey,
" Queen C
" Hendey,

TU

No. 2 Bardon
4" Pratt &
12" Jones

4 B. & O.
Gisholt, la
Gisholt, o
3" 24" Davi
x 10" Lodge

olt cutter, 2
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olt cutter, 1
olt cutter, 1
complete equ
mach., 6" S

SECOND-HAND MACHINERY

FOR SALE BY

The Motch & Merryweather Machinery Company,

707-715 Lakeside Av., N. W., Cleveland, Ohio

Branches: Detroit, Cincinnati, Pittsburg.

Below we give a partial list of machinery in stock. Our latest illustrated issue of "Machine Tools" giving a complete description of our stock may be had for the asking. We buy only the best. Delivery is immediate.

BORING MILLS.

3" Bullard, swivel turret head.

7" Pond, very good condition.

2" bar Binsse horizontal boring machine, good as new.

4" bar Bement-Miles horizontal, very good condition.

2" Lucas cone drive column type horizontal.

DRILL PRESSES.

2" Davis bk. grd. power fd. good.

3" spdl. Rockford 20", back geared, power feed, first class.

2" Rockford, sl. hd., good as new.

DRILLS—RADIAL.

3" Dreses, latest model, swivel table, gr. drive, first class condition.

4" Prentice, cone dr., good condition.

GRINDERS.

No. 60 Heald cyl. grinder, first class.

10" x 36" Landis, plain, very good.

No. 12 Landis, internal, very good.

No. 3 Landis, universal, very good.

GEAR CUTTERS.

2" G. & E., spur and bevel, very good condition.

No. 2 Dwight Slate, cap. 8" x 4", 12 d.p.

2" Brown & S., very good cond., (2).

LATHES.

All sizes from 10 in. to 60 in. swing always in stock.

PLANERS.

3" Bush crank planer.

2" x 22" x 6" Gray, sgle. hd., first class.

3" x 24" Powell, sgle. hd., gd., as new.

3" New Haven single head, good.

MILLING MACHINES.

No. 2 B. & S. plain, first class.

2" x 8" Ingersoll slab miller.

3" B. & S. plain, very good.

SHAPERS.

2" Flather, gear box drive, down feed to head, first class.

2" Hendey, friction, first class.

2" Queen City, bk. gd., first class.

2" Hendey, later type, very good.

TURRET LATHES AND SCREW MACHINES.

No. 2 Bardons & Oliver, very good.

2" Pratt & Whitney, double back geared, fair condition.

2" Jones & Lamson, sliding head, very good condition.

2" B. & O. swings 18", cross feed to turret, first class.

2" Gisholt, latest model, excellent condition.

2" Gisholt, old type, very good condition.

2" Davis chucking machine, first class.

2" Lodge & Shipley screw machine, very good.

MISCELLANEOUS.

olt cutter, 2-spdl. 2" Acme, complete, late. type, first class cond.

olt cutter, 1" Wells, good as new.

olt cutter, 1" Acme, latest type, complete equipment, good as new.

pe mach., 6" Saunders, good as new.

2" Gray, single head, first class.

36" x 36" x 8" Sellers, sgl. hd., good.

48" x 48" x 16" Detrick & Harvey, open-side, two heads, first class.

MACHINES.

No. 2 B. & S. universal, cone drive, complete, first class.

No. 12 B. & S. Lincoln, first class.

24" S. & M., latest type, first class.

24" G. & E., b. g. crank, very good.

26" Cincinnati, shifting belt.

26" Queen City, back geared crank, good as new.

Pipe machine, 12" Curtis, first-class.

Planer, portable, 40" stroke, Morton, very good.

Punch and shear, hand.

Tapper, Pratt & Whitney, good.

Tire welding hammer, Williams-W.

SECOND-HAND MACHINERY

FOR SALE BY

**The H. A. Stocker Machinery Co., 566-72 W. Randolph St., Chicago
610 Merrill Building, Milwaukee, Wis.**

LATHES.

14x6 Lodge & Shipley, pat. head.
14x6 Flather and Draper, comp. rest.
16x6 Bradford, like new.
16x6 Prentice Bros., compound rest.
16x7 Pratt & Whitney, c. r. & taper.
16x7 Blaisdell, comp. rest and taper.
16x8 Bradford, like new.
18x10 Economic, compound rest.
19x10 Cincinnati, compound rest.

20x8 Hamilton, q. c. g., comp. rest.
20x12 Draper, compound rest.
26x26 Bridgeford, compound rest.
30x12 Bradford, c. r. and chuck.
30x12 Flather, compound rest.
32x14 Putnam, compound rest.
32x18 Pittsburg, d. b. g.
42x18 Bridgeford, gd. hd., motor dr.
50x20 New Haven, compound rest.

SHAPERS.

14 in. Flather, crank.
14 in. Rockford.
14 in. Gould & Eberhardt.
16 in. Gould & Eberhardt.

16 in. Steptoe, single geared crank.
16 in. Walcott, single geared crank.
17 in. Economic, single grd. crank.
18 in. Flather, single geared crank.

PLANERS.

22x22x5 Whitcomb, good order.
26x26x8 Whitcomb, (new, reduced
price.)
30x30x10 Flatner, 3 heads.
32x32x 8 Am. Tool Works, 1 head.
36x30x12 Sellers, old style, low price.

36x36x10 Niles, 2 heads.
36x36x12 Gray, 2 heads.
40x38x14 Putnam, old style, low pr.
42x42x14 Detrick & H., open side.
44x44x12 Pond, 2 heads.
48x48x20 Belmer, 4 heads, rebuilt.

MILLING

No. 2 Hendy, b. g., plain.
No. 2 Kearney & Trecker, back gear,
plain, with vertical attachment.
No. 4 Garvin profiler.
No. 2 Waltham, bench.
No. 3 Fox, plain.
No. 2 Owen, plain, b. g.
No. 3 Owen, plain, d. b. g.

MACHINES.

No. 34 Fox, plain.
No. 13 Garvin, plain.
No. 5 Garvin, plain, back geared.
No. 2 Thurston die miller.
No. 2 Brown & Sharpe, universal.
No. 2 Cincinnati, universal.
No. 4 Becker, universal (new, low
price.)

UPRIGHT AND RADIAL DRILLS.

2 1/2 ft. Fosdick National radial.
3 ft. Fosdick standard radial.
5 ft. arm Western universal radial.
5 ft. Bickford plain, gear box, radial.
4 ft. Bickford plain, cone radial.
6 ft. Bickford radial.

42 in. Barnes, geared feed.
38 in. New H., sl. hd., bk. gr., p. fd.
35 in. Blaisdell, sl. hd., b. g. & p. f.
28 in. Superior, b. g., p. f., auto. stop.
25 in. Prentice Bros., sl. hd., b. g., p. f.
23 in. Barnes, b. g., fr. co. shaft.

POWER PRESSES

No. 36 Niagara, geared.
Wold horn press.
No. 30 Perkins, open back inc. press.
No. 2 Rudolphi & K., o. b. i. press.
No. 18 Biliss open back inc. press.
No. 50 Crosby, open back press.
No. 42 E. Rudolphi & K. arch press.
No. 4 A Rudolphi & Krummel deep
throat press.
No. 34 A Bliss, toggle, 20 in. stroke.
No. 734 Bliss st. sides press, 12 in. st.

AND PUNCHES.

No. 1 1/2 Bliss cam drawing press.
No. 31 Toledo solid back press.
No. 1 Syversen solid back press.
No. 3 Bliss "Stiles" geared punch.
Humphrey single end punch, 36 in.
throat, cap. 14 in 1 in.
Bement sgl. end punch, 42 in. throat,
cap. 4 in 1/2 in.
Keen multiple punch & shear, 24 in.
throat, 36 in. between uprights.

SCREW MACHINES AND TURRET MACHINES.

No. 2 Pratt & Whitney.
No. 2 1/2 Pratt & Whitney.
No. 4 B. & O. screw machine.
No. 51 National-Acme automatic.
6 1/2 in. Cleveland automatic.
4 1/2 in. Gridley auto., motor drive.

1 in. Cleveland automatic.
1 1/2 in. Cleveland automatic.
No. 3 Foster universal turret.
2 1/2x24 Jones & Lamson.
3x36 Jones & Lamson.
14 Turret Lathes, small sizes.

BORING MILLS—VERTICAL.

37 in. Niles, 2 heads.
42 in. Buhlard, 1 swivel hd., 1 tur. hd.
52 in. Coburn, 2 heads.
Fitchburg horizontal, 36 in. swing.

34 in. Colburn, swivel turret.
10 ft. Bettis, 2 heads.
10-16 ft. Niles, extension housings.
80 in. Pond, 2 heads.

Bolt
Bolt
Bull
Bull
Bull
Center
Cold
Cutting
Gear
Gear
Gear

The
W
are in

24" Cin
26" Bi
28" Bi

15" x 6"
16" x 6"
16" x 8'
18" x 8'
18" x 12'
20" x 10'
26" x 14"

28" x 28" x
28" x 28" x

Grinder,
Shaper, I
counter

Frank T

12x6 Hene
14x7 Lodg
16x8 Brad
16x12 Am
22x15 Drag
24x16 New

No. 1 Van
No. 22 Gar

28x28x7 Ne
30x33x12 W

Boring mill
Grinder
Grinder, os
field No. 1
Hammer, st
burg, sing
Hammer, st
Hammer, dr
like new
pipe machine

SECOND-HAND MACHINERY

The H. A. Stocker Machinery Co.,—Continued.

MISCELLANEOUS.

Bolt cutter, 14 in. Schlenker.

Bolt header, 4 in.

Bulldozer, No. 2 W. & W.

Bulldozer, No. 5 Ajax.

Centering machine, 4 in. Whiton.

Cold saw, No. 4 Birdsboro, 6x. saws.

Cutting-off mch., 5" Hurlbut & R.

Gear cutter, 30 in. Flather.

Gear hobbing machine, Reynolds.

Gear hobber, No. 0 S. & S.

Grinder, plain, No. 14 Landis.

Hammer, helve, 40 lb. Bradley.

Hammer, drop, 500 lb. National.

Hydraulic press, 40 ton.

Hydraulic press, 100 ton, with pump.

Pipe machine, 4 in. Saunders.

Pipe machine, 4 in. Stoever.

Punch and shear, No. 5 L. & A.

Riveter, 3-16 in. Adt.

FOR SALE BY

The Cordesman-Rechtein Co., 215-219 Butler St., Cincinnati, Ohio

Will sell following tools in order to readjust our shop equipment. All are in good condition and may be seen in operation.

DRILLS.

24" Cincinnati, taper attach.

26" Hickford.

28" Hickford.

4" Hickford radial, plain.

4" Universal Radial Drill Co., plain radial.

LATHES.

15" x 6' Lodge & Davis, chuck.

16" x 6' Von Wyck, with chuck.

16" x 8' Lathe & Morse, with chuck.

18" x 8' Mueller, with chuck, (2).

18" x 12' New Haven, with chuck.

20" x 10' Lathe & Morse, with chuck.

26" x 14' New Haven, with chuck.

Fox special lathe.

60" Lodge & Barker gap lathe.

30" Streit pulley turning lathe.

Streit pulley boring lathe.

2" bar lathe, Jones & Lamson, turret and chucks.

PLANERS.

28" x 28" x 7' Smith & Silk.

28" x 28" x 8' Bogart.

40" x 36" x 8' New Haven.

40" x 36" x 12' New Haven.

MISCELLANEOUS.

Grinder, double emery, for castings.

Shaper, 18" Hendey, with chuck and countershaft.

Grinder, water tool.

Time clock, Dey, 100-men, 7-day, nearly new.

FOR SALE BY

Frank Toomey, Inc.,

127 N. Third St., Philadelphia, Pa.

LATHES.

12x6 Hendey-Norton, tool room.

14x7 Lodge & S., geared head.

16x8 Bradford, quick change gear.

18x12 American, (2).

22x15 Draper, taper attach., (2).

28x16 New Haven, taper attachment.

27-34x21 McCabe, dbl. spdl. & chk.

28x16 Fifield.

36x16 Niles.

42x20 Pond.

51x30 Baker, blocked to 62 $\frac{1}{2}$.

Foster & Kimball turret, (several.)

MILLING MACHINES.

36 in. x 12 ft. slab miller, heavy.

PLANERS.

36x36x12 Sellers, 3 heads.

60x60x14 Pond.

MISCELLANEOUS.

Boring mill, 36 in. Bridgeport, sgl. hd.

Grinder, univ., No. 2 Brown & S.

Grinder, oscillating surface, Springfield No. 5.

Hammer, steam, 400 lb. Chambersburg, single frame.

Hammer, st. drop, 1,500 lb. Morgan.

Hammer, drop board, 1,500 Merrill, like new.

Pipe machine, 8 in. Saunders.

Radial drill, 36 in. Morris.

Shaper, 24 in. Queen City, back gd.

Punch and shear, combination.

Sellers, 30 in. gap, capacity 1 $\frac{1}{2}$ in. in 1 $\frac{1}{2}$ in. and shear 1 $\frac{1}{2}$ in.

Shear, right hand lever, No. 3 Mesta, alligator type.

Shear, sgle. end, 50 in. gap, engine dr.

Turret lathes, No. 14 Garvin (2).

SECOND-HAND MACHINERY

FOR SALE BY

McCoy & Brandt, **410 House Building, Pittsburg, Pa.**
LATHES, MILLING MACHINES AND DRILL PRESSES.

13 in. x 5 ft. American
 14 in. x 6 ft. Lodge & Shipley.
 17 in. x 8 ft. Parker & Knight.
 21 in. x 10 ft. Johnson, hollow spindle, compound rest, taper attachment.
 24 in. x 28 ft. Bradford, power cross feed, compound rest, 2 in. hol. spdl.
 30 in. x 16 ft. Woodlight & Co., comp. rest, power cross feed.
 32 in. x 12 ft. Schumacher & Boye, h.s.
 32 in. x 33 ft. Gleason shafting lathe.
 48 in. x 22 ft. Crichton & Barnes.
 66 in. x 18 ft. New Haven, 14 ft. ext.
 22 in. Prybil spinning lathe.
 13 in. x 8 ft. Blount speed lathe, tur. attachment.
 No. 4 J. & L. turret lathe.

9 in. E. & S. Turret, 6 tool turret, h.s.
 No. 2 Warner & Swazie turret.

17 in. swing P. & W. 6 tool tur., 1 $\frac{1}{2}$ hollow spindle.
 B. & S. universal tool room miller.
 No. 3 $\frac{1}{2}$ Fox miller, back geared.
 No. 13 Garvin plain miller.
 20 in. Davis drill press, back geared.
 26 in. Barnes, back geared.
 3 spindle Gardam sen., 18 in. spin.
 36 in. Universal radial.
 42 in. Pond plain radial.
 12 spindle Baush, 1 $\frac{1}{2}$ in. spindles.
 5 ft. Fosdick full universal, tap. att.
 15 ft. Cleveland P. & S. Co., wall radial.

SHAPERS, PLANERS AND BORING MILLS.

24 in. Hendey crank shaper.
 20 in. P. & W. crank shaper.
 Cincinnati openside, 10 ft. 6 in. x 25 in. reach.
 10 in. Putnam, traverse head.
 36x36x 8 New Haven planer.
 38x38x20 Gleason, ext. to 52 in.
 48x48x10 Woodward & Powell, 2 hds.
 60x60x24 Cincinnati, 4 heads.
 60x48x16 Geneva, 1 head.

96x96x16 Powell.
 24 in. Betts rotary, 4 ft. 6 in. travel.
 32 in. horizontal boring & turning machine.
 48 in. Colburn, 2 swivel beads.
 53 in. Colburn, 2 swivel heads.
 50 in. Niles hub boring machine.
 60 in. Niles.
 14 ft.-20 ft. Niles boring mill.

PUNCHES, PRESSES, HAMMERS, ETC.

14 $\frac{1}{2}$ W-W double end, 12 & 24 in. throat.
 Henry Pels T. 40 in. beam shear.
 36 in. Cleveland, extra heavy, 2 in. thru 1 in.
 Geo. Whiting punch & s., 42" thrt.
 Butterfly shears for cutting light scrap. (6).
 24 & 30 in. foot power squaring shears.
 No. 2 Toledo foot power punch press.
 1500 lbs. Lane steam drop hammer.
 1250 lbs. Bement-Niles steam drop.
 1250 lbs. Chicago board lift drop.
 500 lbs. Bell single leg steam.
 800 lbs. Niles single leg.

4000 lbs. Chambersburg double leg.
 P 2 Ferracut press.
 No. 3 Bliss double crank, 36 in. bolster.
 No. 3 $\frac{1}{2}$ A Bliss toggle press.
 No. 95 E Toledo power press.
 Toledo 205-D-60 double crank press.
 No. 20 Bliss inclinable.
 3P Ferracut side crank.
 36x36 in. Bliss cornice makers' drop press.

1 in. Acme thread roller.
 1 $\frac{1}{2}$ in. Acme single head bolt cutter.
 3 in. Reliance bolt cutter.
 3 in. Acme pipe threading machine.
 4 spindle D & H $\frac{1}{2}$ in. nut tapper.

CRANES, COMPRESSORS AND GENERATORS.

10 ton 40 ft. span Shaw, 220 v., d. c.
 10 ton 40 ft. span Niles, 220 v., d. c.
 3 ton 32 ft. span Brown hoist hand crane.
 10 ton 95 ft. span Morgan, 220 v., d. c.
 6x6 in. Rand imp. type compressor.
 8x8 in. Rand imp. type.
 25x20 in. Ing. Rand duplex imp.
 16x10 in. Bury, class BB, 40 lbs.
 30 k. w. West. d. c. 8x12 in. auto. eng.
 55 k. w. West. type S, 125 v., d. c.
 35 k. w. West. d. c. 85 h. p. gas eng.
 110 v.
 56 k. w. West. 125 v., d. c. West. gas eng.
 60 k. w. West. 125 v. perfect cond.

10x16x14 Bury duplex, 50 lbs.
 24x18 in. Ing. Rand dup. class D.
 12x12 & 6x10 Norwalk, 282 ft.
 14 & 16x10x16 Sullivan, 537 ft.
 20x20 & 12 $\frac{1}{2}$ x24 Norwalk, 960 ft.
 22x22 & 13 $\frac{1}{2}$ x24 Norwalk, 1160 ft.
 20x22x16 Ingersoll Rand, 2000 ft.
 25 k. w. Keystone gen., 115 v., d. c.
 100 k. w. Bullock, d. c. Erie eng.
 120 v.
 56 k. w. West. type M, 250 v., d. c.
 75 k. w. West. 250 v., d. c., d. c. West. gas eng.
 75 k. w. West. 250 v., d. c. Ball eng.
 100 k. w. Westinghouse, 250 v., d. c., d. c. McEwen engine.

Jose

Item
 H2927
 H162

H793
 H767
 H962
 H966
 H804
 H848
 H997
 H932
 H945
 H921
 H929
 H859
 H838

H517
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 H864
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H958
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 H720
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 H914

H918
 H213
 H827
 H672
 H913
 H951
 H893
 H837
 H208
 H952
 H647
 H960
 H623

SECOND-HAND MACHINERY

FOR SALE BY

Joseph T. Ryerson & Son, - 16th and Rockwell Sts., Chicago

PLANERS.

Item.	H167	Gray 24x24x6, 1 head.	H169	Sellers, 42x42x8 $\frac{1}{2}$, 2 heads.
		Sellers, 42x42x6 $\frac{1}{2}$, 2 heads.	H946	Lodge & Davis 36x36x8, 1 hd.

LATHES.

H793	Prentice 9x4 hollow spindle, compound rest, chuck.
H767	11x3 $\frac{1}{2}$ speed lathe, turret slide, cut-off slide.
H902	Bradford 14x6 hollow spindle, compound rest, chuck.
H966	Flather 14x8 tool room, collet and taper attachment.
H804	LeBlond 14x8 hollow spindle, compound rest.
H848	Porter 16x6, plain rest, chuck.
H997	American 16x10 gd. head, q. c. g., taper attachment.
H932	Reed 18x8, hollow spindle, plain rest.
H945	New Haven 20x24, swings 28 $\frac{1}{2}$.
H921	Lodge & Davis 22x16 hollow spindle, plain rest.
H920	Niles 60" pulley lathe, 2 compound carriages.
H559	Flather 24x10, q. c. g., hollow spindle, compound rest, chuck.
H838	Putman 32x16, solid spindle, compound rest.

DRILLS.

H517	Snyder, 25 in. adj. head.	H926	Niles 4 ft. radial.
H610	Dallert No. 3, port. rope dr.	H961	Blaisdell 24 in. adj. head.
H832	Dwight-Slate 4 spil. sens.	H962	Snyder 32 in. adjustable hd.
H864	Quint 6 spindle turret head.	H972	Prentice 28 in., geared feed.
H892	Cincinnati 20 in. lever feed.	H974	Henry & Wright 1 sp. snst.
H915	Niles 5 ft. radial, semi-univ.	H992	Rockford 24" tp'g. att.
H916	Lodge & Davis, 32 in., adj. hd.	H995	Cincinnati 28" tp'g. att.

GRINDERS.

H971	Blount No. 2 cabinet base, takes 2, 10" wheels.
H889	Yankee style B, capacity $\frac{1}{2}$ to 24" drills.
H812	Landis No. 1 universal, range 9x24.
H811	Brown & Sharpe No. 3 cutter and reamer grinder.
H976	Besley No. 10 double disc grinder with clamp.
H802	Cincinnati No. 2 universal tool grinder with 220 v., d. c. motor.

PNEUMATIC TOOLS.

H605	Albree toggle, 26 in. reach, capacity 1 in. rivets.
H909	Blaisdell 10-16x10 cross compound compressor, belt drive.
H857	Allen riveter, 25 in. reach, 15 in. gap, capacity 1 $\frac{1}{2}$ in. rivet.

MILLING MACHINES.

H665	Ingersoll, slab 36x36x8.	H737	Kempsmith No. 2 plain.
H636	Garvin No. 4 plain, 3 feeds.	H964	Osterlein plain, 34x9x12.
H658	Lincoln type, 6x26 in.	H940	Davis & E., No. 4 univ.

TURRET MACHINERY.

H958	Cleveland $\frac{1}{2}$ in. automatic screw machine.
H655	Pratt & Whitney $\frac{1}{2}$ in. hand screw machine.
H795	Wells No. 140, $\frac{1}{2}$ in. hand screw machine.
H720	Jones & Lamson 2x24 turret lathe.
H744	Springfield Fox 18x6, turret on bed.
H953	Gisholt 21 in. turret, 2 in. hole in spindle.
H914	Conradson 24-32 turret lathe.

MISCELLANEOUS.

H918	Boring mill, 50 in. Niles, 2 heads.
H213	Boring and drilling machine, horizontal, 4x27x60 in., Beaman & Smith.
H827	Crane, hand power, 5 ton capacity, 18 ft. span.
H672	Cutting-off machine, 3 in., Hurlburt & Rogers.
H913	Cut-off saw, No. 3-B., capacity 20 in. beams.
H951	Flue welder, Hartz roller, capacity 4 in.
H893	Gear cutter, 36 in. Brainard, semi-universal.
H837	Keyseater, No. 0 Colborn.
H208	Profiling machine, No. 2 Pratt & Whitney.
H952	Saw grinder, 20 in. Higley.
H647	Screw machine, hand, $\frac{1}{2}$ in. Pratt & Whitney.
H960	Steam hammer, 400 lb. Chambersburg.
H623	Tapping machine, No. 1 Garvin automatic.

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York.
Located at Chicago, Boston and New York.

Send for Catalogue No. 18.

LATHES.

13x6 P. & W., r. & f., taper.
 14x5 American, brass, Fox att.
 16x8 P & W., r. & f.
 16x8 Perkins, c. r.
 16x10 P. & W., r. & f. & t.
 18x6 Blaisdell, r. & fall.
 18x6 Pond, turret tool post.
 18x7 Pond, turret tool post.
 18x8 Flather, quick change.
 20x8 old style P. & W.
 20x10 Flather, c. r.
 22x12 Niles, with taper.

24x16 Niles, c. r.
 26x12 Pond, comp. rest.
 28x12 Pond, compound rest.
 30x14 Niles, c. r.
 32x12 Pond, compound rest.
 36x17 Pond, 220 v. motor drive, taper.
 36x18 Bement, comp. r., tri. grd.
 36x28 Bement, comp. r., tri. grd.
 40x16 Bement, b.g., not screw cutting.
 42x22 Niles, comp. r., tri. grd.
 42x30 Putnam, comp. r., tri. grd.
 44 in. P. & W. pulley lathe.

SCREW MACHINES, TURRET LATHES, ETC.

14x5 American, square arbor.
 1 in. P. & W. hand screw mch.
 1 in. B. & O. hand screw mch.
 No. 3, 2 1/2-16 in. Niles screw mch.
 2x24 Jones & Lamson.
 21 in. Gisholt, turret.
 24-27 Conradson semi-automatic turrett, 2 3-16 in. hol. sp.
 28 in. Milwaukee turret, 4 1/2 in. hol. sp.
 30 in. tur. hd. b. & t. mill, Colburn.
 50 in. Niles pulley borer.
 60 in. Bement b. & t. mill, 2 heads.
 72 in. Bement b. & t. mill, 2 heads.
 7 ft. Pond b. & t., 2 heads.
 8 ft. Pond b. & t., 2 heads.
 14'-20' Betts extension, b. & t., 2 hds.
 2 in. sp. Kelly hor. bor. and drill.

1 in. Hartford automatic pin machine.
 1 in. P. & W. automatic screw mach.
 1 in. P. & W. 2 sp. automatic screw machine.
 1 in. Acme old style 4-sp. automatic.
 1 in. single turret Spender automatic.
 21-32 in. No. 2 Brown & Sharpe automatic screw machine.

BORING MACHINES.

34 in. sp. Bement hor. bor. & drill.
 4 in. sp. Betts, hor. bor. & drill.
 96 in. swing x 10 ft. centers bor. & fac-
 ing; weight: about 43,000 lbs.
 4 ft. diam. spindle Niles floor bor-
 ing, drilling and milling machine,
 17 ft. column travers.

UPRIGHT AND SENSITIVE DRILLS.

13 in. 1 sp. sensitive, motor d., 110 v.
 10 in. 2 sp. sensitive, Slate.
 10 in. 3 sp. sensitive, Slate.
 10 in. 3 sp. sensitive, Signourney.
 2 spindle dbl. column sen., Langelier.
 17 in. 4 sp. gang, Jones & L.
 20 in. No. 23 Foote Burt high duty.
 28 in. sliding head, Pond.

30 in. sli. head, Gould & Eberhardt.
 36 in. sliding head, Gould & E.
 4 spindle Bement, multiple, 11 ft.
 between housings.
 No. 11 multiple drill, P. & W.
 10 sp. adjustable R. & W., capacity
 16 in. holes in 27 in. circles, belt or
 motor; weight: 30,000 pounds.

RADIAL DRILLS.

2 1/2 ft. semi-radial, Hilles & J.
 4 1/2 ft. semi-radial, Barr.
 4 ft. Niles, plain.
 4 ft. Niles, univ.
 5 ft. Niles, plain.

5 ft. plain, motor, Pond.
 5 ft. 6 in. universal, Niles.
 6 ft. 10 in. semi-universal, Niles.
 7 ft. 6 in. full universal, Niles.
 Univ. portable radial, Prentice.

MILLERS AND GEAR CUTTERS.

No. 2 hand P. & W., 16x7 table.
 24x7 table, plain, Becker.
 43x9 1/2 No. 3 Cincinnati plain, b. g.
 Single sp. profiler, 21x24 in. table,
 Garvin.
 P. & W. spline miller.

6x14 thread miller, P. & W.
 30 in. spur gears, Gould & E.
 36 in. spur gears, Pond.
 48 in. spur gears, Brown & Sharpe.
 72 in. spur gears, Niles.
 84 in. spur gears, Niles.

SHAPERS AND SLOTTERS.

10 in. crank shaper, P. & W.
 10 in. crank shaper, Miles.
 12 in. crank shaper, Bement.
 16 in. sing. gear crank, Stockbridge.
 16 in. down feed, 220 v. motor drive,
 Stockbridge.

18 in. double trav. head, Cincinnati.
 18 in. crank shaper, Bement.
 32 in. triple grd. rack, Cincinnati.
 12 in. crank slotter, Bement.
 14 in. crank slotter, Niles.
 18 in. crank slotter, Bement.

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SECOND-HAND MACHINERY

Niles-Bement-Pond Company—Continued.

RAILROAD MACHINERY.

46 in. car wheel lathe, Bement.
Niles double axle lathe.
Bement double axle lathe.
Putnam double axle lathe, ex. heavy.
22x22x6 Harrington.
26x26x7 Niles, heavy type.
26x23x16 Miles, 2 hds.
30x30x6 Pond, 1 hd.
30x30x8 Pond, 2 heads.
30x30x24 Sellers, 2 hds.
32x32x12 Pond, 2 hds.
32x32x14 Pond, 2 hds.
36x36x8 Niles, 1 head.
36x36x12 Pond, 2 heads.

PLANERS.

36x36x20 Pond, 3 hds.
42x42x12 Woodward & P., 4 hds.
42x42x20 Miles, 3 hds.
48x48x16 Pond, 4 hds., heavy, 220 v.
motor.
48x48x20 Sellers, 3 hds.
50x50x18 Gleason, 2 hds.
72x60x20 Niles, 2 hds.
86x86x35 Pond, 4 hds.

MISCELLANEOUS.

Bar cut-off saw, 16 in. diam. blade.
Bending and straightening machine,
horizontal, for 10 to 15 in. beams
and channels.
Cut-off machine, 2½ in. P. & W.
Cut-off machine, 4½ in. Starr.

Engines, 28 to 90 h. p.
Grinder, drill, 3 in. Sellers.
Grinder, plain, 5x32 in. Landis.
Grinder, 12x96 in. Springfield.
Pipe machine, 6 in. Oster.
Saw grinder, automatic.

FOR SALE BY

F. P. Schlelein Mchy. Co., 114-116 W. Park Way, N. S., Pittsburgh, Pa.

Drill, portable No. 4 Dallett.
Exhaust fan, No. 9 Champion, 16" inlet and outlet.
Generator, 75 light, 110 volts, with switchboard.
Grindstone frame, iron, 28x3" stone.
Hammer, steam, 600 lb. Pittsburgh, double frame.
Lathe, engine, 12"x5" Champion.
Lathe, engine, 14"x6" Monarch.
Motor, 2 h.p. Lundell, 500 volts, d.c.
Planer, 16"x16"x42" Walter Bros.
Planer, 24"x24"x6" G. A. Gray Co.

Planer, pony, 24x8" Fay & Egan.
Pressure blower, No. 1 Champion,
3½" outlet.
Pressure blower, No. 4 Buffalo, 5"
outlet.
Radial drill, plain, 4½" Baush.
Screw press, No. 3 Young & Wheeler,
hand power.
Shaper, 6"x9" Boynton & Plummer.
Turret lathe, brass working, 18"
American Tool & Machine Co.
Wire cutter, 4" Shuster, hand power.

FOR SALE BY

O. L. Packard Machinery Co.,

LATHES.

14"x 6' Blaisdell lathe, solid spindle.	\$ 150.
14"x 6' Flather, hollow spindle.	200.
14"x 6' Hamilton, c. r., power cross feed, hollow spindle.	225.
18"x 6' American, compound rest, hollow spindle lathe.	250.
28"x12' Harris lathe.	300.
16" turret lathe.	150.
18" Lodge turret lathe, power feed.	150.
1" screw machine, Dreses, nearly new.	275.

MISCELLANEOUS.

Drill press, 26" Mechanics, sliding head.	\$ 125.
Keyseater, No. 2 Mitts & Merrill, modern, in good condition.	175.
Pipe machine, No. 8 Merrill.	275.
Planer, 24"x24"x5' Pond, two heads on cross rail.	550.
Planer, 25"x25"x16' Fitchburg.	450.
Screw machine, 4" Pratt & Whitney.	375.
Shaper, 2 spindle, wood top.	50.
Shaper, No. 2½ Clement, wood top, new.	125.
Shaper, Indiana, 2 spindle, no table.	75.

SECOND-HAND MACHINERY

FOR SALE BY

Brown & Zortman Machinery Co., 2535 Liberty Ave., Pittsburg, Pa.

LATHES.

2x24 in. Jones & Lamson.
18 in. American Tool & Machine
brass lathes, (2).

21 in. x 8 ft. New Haven.
60 in. x 18 ft. New Haven, with 14 ft.
extension, triple geared.

PLANERS AND SHAPERS.

30x30x12 Sellers planer.

24 in. Juengst shapers, (2).

42x4x18 Betts planer.

26 in. Kelly shaper.

84x84x14 Niles planer, 3 heads.

28 in. Juengst shaper.

26x26x6 Lodge & Davis planer.

30 in. Morton draw cut shaper.

26 in. Cincinnati back geared shaper.

RADIAL DRILLS.

No. 1 Bickford, plain.

30 in. Mueller, plain.

MISCELLANEOUS.

Grinder, universal, No. 2 Diamond.

Pulley boring machine, 50 in. Niles.

Grinder, universal, No. 2 Landis.

FOR SALE BY

The Osborne & Sexton Machinery Co., . . . Columbus, Ohio.

LATHES.

16x 6 Reed, hollow spindle.

20x12 Hamilton, h. s., c. r., taper.

16x10 Mueller, hollow spindle.

22x16 Lodge & Davis, hol. spdl.

19x12 Lodge & Davis, h. s., c. r.

48x19 Gleason, 36 in. raised.

PLANERS AND SHAPERS.

14 in. Hendy.

24x24x8 Gray.

14 in. Steptoe.

48x4x20 Belmar, 4 heads.

16 in. Gould & Eberhardt.

72x72x19 Betts, 4 heads.

MISCELLANEOUS.

Boring mill, 50 in. Niles.

Miller, plain, Grand Rapids No. 1.

Boring mill, Niles, 14-20 ft. exten.

Punch press, No. 12 Etna, inc.

Drills, 22 and 24 in. Barnes, complete.

Punch and shear, 18 in., hvy. pat.

Gas engines, 10, 15, 25, 40 & 60 h. p.

Radial drill, 5 ft. Niles, plain.

Gas furnaces, Chicago, (2).

Rolls, Toledo shovel blanking.

Hammers, drop, 300, 750 and 3,000 lbs.

Threading mches., Webster & P., (2).

Hammers, helve, Schatz & Dayton.

Wheel press, 100 ton, Niles.

FOR SALE BY

The Randle Machinery Co., . . .

ENGINE LATHES.

18 in. x 8 ft. McFarlan.

16 in. x 8 ft. Steptoe.

17 in. x 12 ft. Greaves-Klusman.

Lathes complete with face plates,
chuck, countershafts and all parts.

PLANERS.

36x36x8 ft. Oesterlein, with coun-
tershaft and all tools.

Corliss, from 50 to 500 h. p.

1 special planer 47 in. between hous-
ings, table 11 $\frac{1}{2}$ ft. long.

Automatic, from 15 to 200 h. p.

GAS & GASOLINE ENGINES.
25 h. p. Dean.

Throttling, from 5 to 225 h. p.

8 h. p. Springfield.

ELECTRIC GENERATORS

All sizes and kinds.

120 k. w., belted.

MISCELLANEOUS.

Heaters, tanks, pumps, electrical, saw mill and general machinery, including
a complete line of Iron Working Tools. Write for list.

Also a full assortment of new machinery.

Sole manufacturers of the celebrated "Leader" Injectors and Jet Pumps.

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1739 Powers St., Cincinnati, O.
BOILERS.
Horiz. tubular, from 36 to 150 h.p.
Fire box, from 8 to 80 h.p.
Vertical, from 3 to 50 h.p.

ENGINES.

Corliss, from 50 to 500 h. p.

Automatic, from 15 to 200 h. p.

Throttling, from 5 to 225 h. p.

ELECTRIC GENERATORS

120 k. w., belted.

25 k. w., Keystone belted.

20 k. w., direct connected with en-
gine.

18 k. w., belted.

10 k. w., Fairbanks-Morse belted.

25 amp., Roth belted.

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SECOND-HAND MACHINERY

FOR SALE BY

The Lake Erie Machinery & Supply Co., (Machinery Dept.)

408-412 Frankfort Ave., N. W.

Cleveland, Ohio.

Revised list of Second Hand Machinery at reduced prices. Write for prices.

LATHES.

11" x 4' Star, milling att., 2 chucks.	20" x 8' W. & W., q. c. fd., h.s., new.
14" x 6' Bradford, h. s. c. r., chuck.	24" x 8' American, h. s. c. r., chuck.
14" x 6' Monarch, c. r., h. s., new, (2).	24" x 16' Gleason, plain rest, chuck.
15" x 6' Blaisdell, hol. spdl., c. r.	24" x 26' New Haven.
16" x 5' L. Johnson, taper att.	24" x 28' Bradford shaft lathe, h.s.c.r.
16" x 8' Crane, plain rest.	32" x 22' Enterprise, raised to 40".
18" x 6' Blaisdell, tur. on carriage.	34" x 22' Enterprise.
18" x 8' Davis & E., b. g., c. r., h. s.	50" x 15' bull lathe.
19" x 6' Blaisdell, b. g., p. r., taper.	88" x 20' Niles bull lathe.

TURRET LATHES & SCREW MACHINES.

No. 4 B. & O. auto, chuck, cut-off rest.	18" Warner & Swasey turret lathe.
No. 3 Pratt & W., fr. b. g., 14" h. s.	24" W. & S. Monitor turret lathe.
22" Bullard, complete.	15" x 6' American b. g. Fox lathe.
1" Cleveland automatic.	16" x 6' Lodge & B. b. g. Fox lathe.
No. 2 Pratt & W. plain turret lathe.	No. 00 B. & S. auto. screw mch., (2).

SHAPERS.

16" Walcott & Wood, triple gd., new.	18" Walcott & Wood, high speed
16" Barker, back geared crank, new.	back geared crank.
24" Hendy, triple geared.	26" Lodge & Davis, triple geared.

DRILLS.

No. 1 Prentice Bros. radial, 4' arm.	26" W. F. & J. Barnes, sliding head.
13" Dwight-Slate 4-spdl. sensi., (2).	32" Aurora, sliding head.
14" Miami Valley sensitive.	34" W. F. & J. Barnes, sliding head.
Prentice 4-spindle sensitive.	36" Baker Bros., complete.
Nos. 2 & 4 Garvin, 3 & 4 spdl. gang.	Gardam, multiple spindle.
21" Hoefer 6-spindle, complete.	Foote-Burt, multiple spindle.
22" Lodge & Davis, sliding head.	No. 1 Burke, bench, with Jacobs ck.

PLANERS.

16" x 16" x 24" Belden, 1 head.	36" x 36" x 9' New Haven, 1 head.
17" x 17" x 18" Whitcomb, crank.	48" x 48" x 20' Belmar, 4 heads.
26" x 24" 6' L. W. Pond.	60" x 60" x 18' Pond, 3 heads.

30" x 30" x 8' Pease, 1 head.

MILLING MACHINES.

No. 12 Garvin, plain, (3).	No. 2 Pratt & Whitney, plain.
No. 13 Garvin, plain, (2).	No. 3 Kempsmith, plain.
No. 24 Oesterlein, plain.	No. 2 Hendy Norton, universal.

NUT TAPPERS AND BOLT CUTTERS.

1" Acme 6-spindle nut tapper.	motor drive; also 12" belt drive.
1" Acme 6-spindle nut tapper.	3" Reliance bolt cutter.
2" Acme 3-spindle bolt cutter.	

PRESSES.

No. 19 Bliss special, stock feed.	No. 3 P. G. Ferracute, geared.
No. 76 Cleveland, straight side, gd.	No. 4 American Can, plain, o. b. i.
No. 41 Toledo plain power press.	No. 7 Niagara, plain, o. b. i.

GRINDERS.

No. 1 Thompson univ., motor drive.	surface grinder.
24" Leland, wet tool.	

MISCELLANEOUS.

Blower, No. 8 Sturtevant Monogram.	Hack saw, 6" Challenge.
Boring bars, (9).	Hammer, steam, 500 lb. Bell.
Boring mill, 9' Niles.	Keyseater, No. 6 Morton, 4 cutters.
Broaching mach., Waterbury-F.	Keyseater, No. 24 Mitts & Merrill.
Chuck, 24" Westcott, combination,	Keyseater, No. 2 Davis.
with 2 sets jaws, pract. new.	Magnet wind'g lathe, high-speed.
Exhauster, No. 3 Champion, new.	Punch & shear comb., 4" Keene.
Exhausters, three 28"; one 50".	Routing machine, vertical spindle.
Floor crane, 1½ ton Franklin.	Slotted, vertical, 12".
Grinders, lathe center, Gem, (6).	Tapping mch., No. 2 Garvin auto.
Grinder, tool post, 110 v. Hisey, d.c.	Weider, port. acetylene, Economy.

SECOND-HAND MACHINERY

FOR SALE BY

Rumely-Wachs Machinery Co., 121 N. Jefferson St., Chicago, Ill.

LATHES.

9" Young, foot power.
13" x 5" Davis.
13" x 6" Prentiss.
14" x 5" Bradford, plain rest.
14" x 6" Bogert.
14" x 7" Bogert.
14" x 6" Pratt & Whitney.
14" x 6" Flather, taper.
15" x 6" Walcott.
15" x 6" Whitcomb-Blaisdell.
15" x 6" Whitcomb-Blaisdell, taper.
16" x 6" Bogert.
16" x 6" Flather.
16" x 6" Walcott.
16" x 7" Springfield "Ideal."
18" x 8" Flather, plain rest.

18" x 8" Flather, quick change.
18" x 8" Walcott.
18" x 8" LeBlond, turret on shear.
19" x 11" Lodge & Davis, taper.
20" x 9" Draper.
22" x 10" Hamilton.
22" x 10" Fifield.
22" x 10" Gleason.
24" x 8" Putnam.
24" x 12" New Haven.
26" x 10" Enterprise.
28" x 12" New Haven.
36" x 12" Schumacher & Boye.
36" x 14" Fifield.
42" x 16" Fitchburg.
24" x 24" Fifield.

UPRIGHT

10" Barnes, friction.
12" Rockford.
14" Rockford.
20" Kern, w. & l.
20" Rockford, w. & l.
20" Barnes, w. & l.
20" Mechanics, w. & l.
20" Barnes, w. & l., b. grd.

26" Barnes, sliding head.
30" Gould & Eberhardt, sliding hd.
34" Gould & Eberhardt, sliding hd.
40" Lodge & Davis, sliding head.
4-spdl. Dwight Slate, sensitive.
4-spdl. Pratt & Whitney, sensitive.
3 spindles Reed, sensitive.

SHAPERS.

12" Springfield.
14" Sellers, traveling head.
15" Hendey.

16" Gould & Eberhardt.
22" Walcott.

PLANERS.

22" x 22" x 5' Wheeler.
22" x 22" x 5' Gray.
26" x 26" x 7' Niles.

30" x 30" x 8' Putnam.
36" x 36" x 8' Geneva.
36" x 35" x 12' Powell.

MILLING MACHINES.

No. 11 Brown & Sharpe.
No. 1 Brown & Sharpe, plain.
No. 1 Brown & Sharpe, universal.
No. 34 Fox, power.
No. 1 Cincinnati, plain.

No. 4 Garvin, plain.
No. 2 Kempsmith, plain.
No. 2 Kempsmith, universal.
No. 3 Kempsmith, plain.
No. 3 Newton, plain.

BORING MILLS.

Niles horizontal, 2½" bar.
42" Bridgeport, turret head.

42" Bullard, two swivel heads.

TURRET LATHES AND

No. 0 Brown & Sharpe, wire feed.
No. 1 Pratt & Whitney, wire feed.
No. 2 Brown & Sharpe, roller feed.
18" x 6" American, square arbor,
Fox.

SCREW MACHINES.
18" x 6" American Fox monitor.
18" x 6" Lodge & Davis.
21" Gisholt.
24" American.

GRINDERS.

No. 1 LeBlond, universal cutter &
reamer.
No. 2½ Bath.

No. 2 Landis, universal.
No. 20 Landis, plain.

MISCELLANEOUS.

Cornice brake, 8' Dreis & Krump.
Cutting-off machine, 4½" Pratt &
Whitney.
Filing machine, Simplex.
Gear cutter, Dwight Slate auto.
Pipe machine, 4" Bignal & Keeler.
Pipe machine, 6" Saunders.
Punch, hand, No. 4 W. & W.

Punch press, open back inclinable,
30-A Perkins.
Punch press, No. 3 Crosby, solid
back.
Shear, hand, No. 4-0 New Doty.
Shear, hand lever splitting, Drom-
bacher.
Rivet spinner, No. 80-A Grant.

SECOND-HAND MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co.,

Air compressors.
Air riveters and presses.
Beam shear.
Bolt and pipe threaders.
Bolt header, National.
Car wheel boring machine, 50"
Crane derricks.
Drill press, 3 spindle, heavy.
Gap shear.

100 other iron and woodworking machines, motors, etc., etc.

215 S. Clinton St., Chicago, Ill.

Grinder, universal, No. 1 B. & S.
Hammers, drop and trip.
Lathe, 24" x 6' Lodge & Shipley.
Miller, No. 6 Garvin.
Planer, 36" x 36" x 12' Bement.
Planer, 36" x 20" x 16" double head,
frog and switch.
Punches and shears, heavy.

FOR SALE BY

Western Machinery Co., 6th and Baymiller Sts., Cincinnati, Ohio.

LATHES.

38" x 12' Fifield, 30" chuck, compound rest..... \$ 600.
26" x 14' Lathe & Morse, 15" chuck, compound rest..... 325.
20" x 14' G. A. Gray, 15" chuck..... 300.
18" x 17' Lodge & Davis, 16" chuck, compound rest..... 350.
Also 12" x 6', 14" x 4', 18" x 8'.

DRILLS.

4' plain radial, Universal Radial Drill Co..... 10" and 12" sensitive.
Drill Co..... 25. 20", 24", 26" and 48" uprights.

MISCELLANEOUS.

Blower, 1/2 cu. ft., Connerville.
Grinder, univ., No. 2 Cincinnati.
Grinder, face, large double wheel
Diamond.
Hack saw, Sterling, motor driven.
Hammer, steam, 800 lb. Erie.
Large stock other machine tools, machinery and supplies.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

210-212 Washington Ave.

St. Louis, Mo.

LATHES.

14" x 6' Lodge & Davis.
16" x 6' Lodge & Shipley.
18" x 8' Bradford.

22" x 10' Blaisdell.
26" x 15' Pond.

TURRET LATHES AND SCREW MACHINES.

24" Gisholt lathe.
2x24 Jones & Lamson.
3x36 Jones & Lamson, (3).
No. 2 Bardons & Oliver screw mech.

14" Wood tilted turret lathe.
14" Pratt & W. auto. screw mech.
Cleveland auto. screw machine.
2" Cleveland auto. screw machine.

SHAPERS AND PLANERS.

18" Steptoe.
16" crank planer.
14" Henry & Wright.
20" Barnes drill.
22" Hoefer drill.

28" geared shaper.
26" x 26" x 8' planer.

DRILLS.

24" Barnes high speed drill.
42" plain radial.
60" heavy drill.

AIR COMPRESSORS.

6x6 belted.
8x8 belted.

10x12 motor driven.
10x10x10 steam driven.

MISCELLANEOUS.

Bolt cutter, 14" National.
Bolt cutter, 36", quick opening.
Boring mill, 4".
Bulldozer, No. 3.
Gear shaper, 36" Fellows.

Grinder, univ., No. 2 Morse.
Grinder, No. 23 Landis.
Hammer, drop, 200-lb. Mossburg.
Keyseater, No. 6 Morton.
Pneumatic riveter, 36" reach.

Hill
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12" X

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SECOND-HAND MACHINERY

FOR SALE BY

Hill, Clarke & Co. of Chicago,

127 N. Canal St., Chicago, Ill.

Our only guarantee on a second-hand machine is: Return it within one month, freight prepaid, and we will refund purchase price in full.

LATHES.

7" American bench.
10" x 5' Pratt & Whitney, tool room.
11" x 4' Mann.
12" x 6' Starr.
13" x 6' Blaisdell.
14" x 6' Blaisdell.
14" x 6' Hendy.
14" x 6' Flather, taper.
15" x 6' Whitecomb Blaisdell.
16" x 6' Springfield.

18" x 8' Whitcomb Blaisdell, gd. hd.
18" x 8' American, geared head.
20" x 10" and 22" x 12" Flather.
24" x 14" Schumacher & Boye.
26" x 16" Draper.
28" x 11" Blaisdell.
32" x 14" New Haven.
36" x 12" Fifield.
60" x 16" Fitchburg.
And many others.

TURRET AND SCREW MACHINES.

No. 00 Brown & Sharpe automatic.
No. 0 Brown & Sharpe full auto.
1" Pratt & Whitney.
4" Wood tilted turret.

2" Bardons & Oliver.
18" Libby turret.
27" x 24" and 3" x 36" Jones & Lamson.
44" Cleveland automatic.

DRILLING AND BORING MACHINES.

10" Barnes, bench friction.
12" two spindle Barr sensitive.
13" & 14" 3-spd. sensitive.
14" Dwight slate, 4 spd. sensitive.
20" Barnes.
23" Barnes, stationary head.
24" Cincinnati.
26" Hoefer, sliding head.
28" Lodge & Davis.

36" Prentice.
24" Simplex Dreses radial.
4" Universal and Gang.
5" Putnam.
6" Baush.
No. 2 Western multiple spindle.
32" Niles vertical boring mill.
Binsse horizontal boring.
No. 3 Universal horizontal boring.

SHAPERS AND PLANERS.

15" Hendy, triple geared.
16" Springfield, crank.
16" American, crank.
16" Walcott.
21" Davis & Egan.
22" Ohio, crank.
24" Lodge & Davis.
24" Pedrick & Ayer, open side.

28" Ohio, triple geared.
22" x 22" x 6" Gray.
24" x 24" x 6" Pond.
30" x 30" x 6" Pease.
36" x 36" x 14" Cincinnati, 2 heads.
40" x 40" x 12" New Haven, 2 heads.
48" x 48" x 13" Cincinnati, 2 heads.

GRINDERS.

Davis & Egan, cutter.
Brown & Sharpe, universal cutter.
Cincinnati, universal cutter.
Wells Bros., univ. reamer and cutter.
Yankee drill grinder.

Heald, twist drill.
No. 200 Heald, piston.
No. 2 Bath, universal.
No. 3 Bath, universal.
No. 16 Landis, plain.

MILLERS AND GEAR CUTTERS.

No. 2 and No. 3 Chicago, small.
No. 2 Garvin, hand.
No. 2 Aurora, plain.
No. 12 Garvin, plain.
No. 12 Brown & Sharpe, universal.
No. 12 LeBlond, plain.
Hendy, duplex.
No. 1 Garvin, plain.

No. 12 Brown & Sharpe, plain.
No. 26 Brainard, plain.
No. 28 Oesterlein.
No. 3 Becker Brainard, universal.
No. 2 Kearney & Trecker, univ.
No. 1 Pfauter gear hobber.
30" Flather automatic gear cutter.
36" Fellows gear shaper.

PUNCH PRESSES.

No. 10 Stiles, bench inclinable.
No. 81 Consolidated, bench.
No. 1 Bliss punch.
No. 1 Faulkner & Sinclair punch.

Nos. 1 and 3 Philadelphia.
Nos. 31 and 32 Toledo punch.
Nos. 1, 2 and 3 Ferracute.
No. 76 Consolidated.

MISCELLANEOUS.

Car brass borer, 2 spdl. Niles.
Cold saw, No. 17 Higley.
Cutting-off mech., 3" Hurlbut & R.
Hammer, 800 lb., board lift drop.
Keyseater, 18" Morton.
Keyseater, No. 0 Mitts & Merrill.

Oil separator, No. 2 American.
Punch and shear, single end, No. 4 Sutton.
Safety motor polishing stand.
Slotted, 12" Niles.
Tapper, No. 1 Garvin auto.

SECOND-HAND MACHINERY

FOR SALE BY

The New Britain Machine Co.,

New Britain, Conn.

Released Tools.

Owing to the consolidation of several plants in our new factory, we have the following duplicate tools for sale:

LATHES.

14"x6' Fitchburg, comp. rest. h. s.
15"x6' Pratt & Whitney, weighted carriage, r. & f. rest.
16"x8' Prentice, r. & f. rest, hol. sp.
16"x10' patternmakers' lathe.

16"x8' Bridgeport automatic threading lathe.

24"x22"x5' Sault.
24"x24"x6' Powell.

18"x10' Bullard, comp. rest. h. s.
22"x20' Reed, comp. rest, hol. sp.
2x24" Jones & Lamson flat turret.

PLANERS.

29"x29"x8' New Haven.

Gang radial, 2 $\frac{1}{2}$ ' arm.
Adt radial, 2 $\frac{1}{2}$ ' arm.

DRILLS.

Snyder back geared power feed drill
25" swing.

Boring mill, horizontal. Western
Tool Works, 2 11-16" bar.

MISCELLANEOUS.

Gear cutter, 18" Becker automatic.
Oil separator, Curtis, with hoist.

FOR SALE BY

A. D. White Machinery Co., . . . 108-114 N. Jefferson St., Chicago

LATHES.

13x5 P. & W., taper and chucks.
14x5 Reed, taper, 2 chucks.
16x6 Flather, 2 chucks.
18x8 Schellenbach, q. change.
18x8 Whitcomb-B., s. pulley drive.
18x10 Schellenbach, q. change.
18x12 Whitcomb-B., s. pulley drive.

18x8 American, latest pat.
20x10 American, q. c., motor drive.
22x16 Whitcomb, 3 step cone.
24x10 Springfield, chuck.
26x14 Field.
30x10 Powell.
32x14 Porter, 20 in. chuck.

DRILLS.

18 in. Blaisdell.
23 in. Hamilton.
28 in. Bickford, sliding head, (4).
30 in. Kerkhoff, sliding head.

30 in. Bickford, sliding head.
32 in. Bickford, sliding head.
32 in. Mechanics. like new.
3 ft. Bickford radial, cheap.

PLANERS.

24x 6 Gray, 1 head, (2).
24x 6 Pond, 1 head.
25x 6 Sellers, spiral drive.
26x 6 Gray, 1 head.
26x 8 Gray, 1 head (2).
28x 8 Gray, 1 head (2).

32x 8 Betts, 1 head.
36x10 Gray, 2 heads.
36x12 Cincinnati, 2 heads.
38x10 Gray, 1 head, fine.
32x25 Betts, 1 head.

SCREW MACHINES AND TURRET LATHES.

16 in. No. 3 Pearson screw machine.
No. 2 $\frac{1}{2}$ Pratt & Whitney sc. mchne.
No. 3 Pratt & Whitney sc. mchne.
2 in. Cleveland, automatic.
2 in. Pratt & Whitney, automatic (4).

8 in. Cleveland, semi automatic.
3 in. P. & W., automatic.
13 in. Dreses turret lathe.
22 in. Gisholt, rapid traverse.
24 in. Gisholt, rapid traverse.

PUNCH PRESSES.

No. 1 R. & K., o. b. i., (2).
Wold, open back.
No. 1 $\frac{1}{2}$ Norton, open back.
No. 19 Bliss inc., (2).

No. 4 Stiles press.
No. 10 Thier inclinable.
No. 68 N. Bliss, double action.
No. 15 Waterbury Farrel, geared.

MISCELLANEOUS.

Boring and facing machine, No. 1 Beaman.
Gear hobber, No. 2 S. & S.
Grinder, cutter, H. G. Barr.
Hammer, power, 35 lb. Justice.
Hammer, power, 50 lb. Dienelt.
Hammer, drop, 200 lb. Norton.

Hammer, steam drop, 5000 lb. Ed Keyseater, No. 2 Catlin.
Keyseater, 16 in. Morton.
Miller, No. 1 B. & S. universal.
Pipe machine, 6 in. B. & K.
Shaper, 14 in. P. & W., univ. vise.
Shapers, 16 in. Smith & Mills (2).

Did you get our new "Yellow Book."



There's Money For You In Steel Stock Bins and Shelves

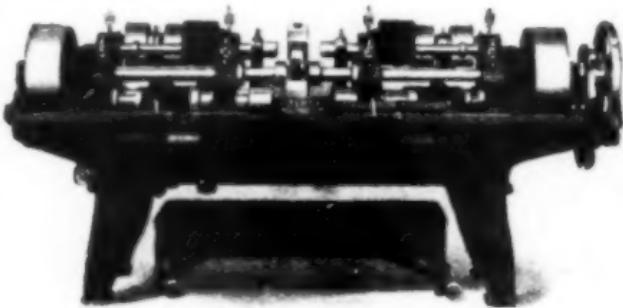
It pays to install a system of steel equipment, when, as with the Terrell interchangeable units, the first cost is not prohibitive, and there is a subsequent saving that speedily pays it. There is a reduction in the fire risk, as well as the insurance cost, for the steel shelves instead of feeding a fire resist it and form a barrier to its rapid spread. With wooden fixtures, again, any change means loss in material and expense for skilled labor in reconstruction; with steel, any of your men can take down, move or rearrange the entire system at only the cost of his time. And while you have to charge off wooden shelves and bins as an expense when you put them in, a steel outfit is always an asset. Prudent, economical people use steel; reckless and extravagant ones stick to wood.

*Better Let Us Estimate the Cost
We'll Try to Figure Close Enough to Interest You*

Terrell's Equipment Company
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Buy Your Own Product At Lower Prices

Your factory costs are the prices that you pay for your own product. Drive a hard bargain with yourself and force those prices down wherever it can be done without impairment of quality.



The Double Head Type of "New Britain" Automatics

does as much work in a day, on pieces requiring machining at both ends, as you can do by ordinary methods in a week or more; and our Single Head Automatic, for machining at one end, is three to five times more productive — therefore more economical — than the hand turret lathe. "A reduction in cost of 70%" and "A saving of \$18.00 a day" are some of the results reported by customers.

*Write for handsome catalog, and send sample
for production estimate. Let us help you
buy your own product cheaper.*

The New Britain Machine Co.
60 Chestnut St., New Britain, Conn.

